40 loch

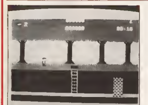
POPULAR Computing WEEKLY

Only 40p.

19-25 July 1984

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Vol 3 No 29



Microdeal's *Cuthbert in the Jungle*

Dragon moves to Spain

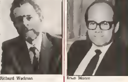
THE future of Dragon Data, which has been in receivership for over five weeks, now looks settled.

The Port Talbot manufacturing plant will be closed, and a Spanish company, Eurohard SA, who exchanged contracts with Dragon Data two weeks ago, will take over manufacture of the Dragon machines. Eurohard operate from a site in Extre Madura near the Portugese border, a Spanish development area. Details of the deal are to be finalised this week.

Eurohard was set up with Spanish government aid specifically to build up the Spanish hardware industry. Before the receiver was called in to Dragon Data, Eurohard was negotiating with the company to gain a licence to manufacture Dragons in Spain.

Not all Dragon employees will lose their jobs, however. A new company, Touchmaster, is being set up headed by Brian Moore as managing director and former marketing director Richard Wadman. Touchmaster will provide after sales services and software support in this country.

GEC will continue the marketing of the Dragon machines in the UK.



Richard Wadman

Brian Moore

Microdeal in court battle

TEN software houses are this week taking action in the High Court against a commercial software piracy racket, in an attempt to prove that software is copyright.

Cornwall-based games company Microdeal unearthed a tape piracy racket involving thousands of pounds worth of Dragon software being sold through classified advertisements in computer magazines.

Games such as Softek's *Ugh!* and Microdeal's *Frogger* and *Cuthbert* series were being copied on a large scale and offered to Dragon owners at a fraction of the retail price.

Dr Mohammed (a medical doctor) and his fourteen-year old brother T Mohsan, it is alleged ran a tape copying operation from four different addresses in the Blackburn area, selling not only sets of 35 games on a single C90 tape, but also utilities such as *Kopy-key* program copier and the *Text-star* word processor.

"Other companies apart from Microdeal and Softek who had games copied inclu-

continued on page 5 ▸

Commodore sues

COMMODORE International is suing four of its former engineers — now working under Jack Tramiel at Atari. The suit, against former engineering director Shiraz Shivji and three others, Arthur Morgan, John Hoenig and Douglas Renn, was filed in Chester County, Pennsylvania on Tuesday, July 10th. The judge granted Commodore's request for a temporary injunction.

continued on page 5 ▸

INSIDE › TURF LUCK › CUT-PRICE KINGS › HOUSE OF USHER

)View

Imagine always flew by the seat of its pants. And now it's gone

It would be easy to say it failed because of bad management imprudent financial decisions and internal wrangling These may have all contributed, but none would have lead to Imagine's downfall if were it not for the present state of the home computer software industry

To say it's quiet would be an understatement Software just isn't selling Christmas was disappointing, and the first six months of this year have been disastrous

It is not for nothing that software houses have suddenly started taking a serious interest in questions like piracy Who cares in a boom time? Things are different now Why do you suppose that some companies are joining the budget software bandwagon?

Why are others selling off their back catalogue at heavy discounts?

Nothing has moved since January

The sensible companies battened down the hatches in March and conserved their resources waiting for the expected up-turn in September

If things don't pick up dramatically in the Autumn then we shall see many more casualties

And the companies which fail will not necessarily be those with poor games It will be the small innovative houses which will go to the wall. Lumbering giants like Thorn EMI, and CBS will be around to pick up the pieces.

Breaks your heart, don't it?

POPULAR Computing WEEKLY Vol 3 No 29

)Presents...

)Futures...

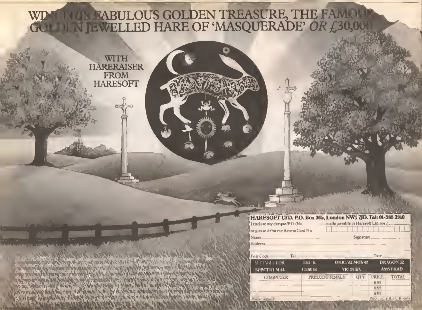
A cypher system to protect your Commodore 64 software . How to verify your QL microdrive programs . An interview with a new software house Triptych trying to make programs that actually do something . And Star Game is *Deathcap* for the Commodore 64

SUNSHINE

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Microdeal

continued from page 1

ded Tandy, Cable, Dragon Data, Morrison Micros, Programmers, Guild, Romik, Quicksilva and PSS," said Microdeal managing director John Symes.

At a private hearing on Monday July 9, Microdeal obtained an Anton Piller search order and on Friday, July 13, Mohsan and Mohammed's house at 24 Irving Place, Blackburn was raided and a number of boxes of tapes and duplicating equipment were seized.

An injunction also obtained by Microdeal to prevent Dr Mohammed from continuing to sell and advertise pirated tapes has been extended until a court hearing is held at the High Court in London on Friday, July 20. An application on Monday, July 16 for a similar extension to cover T Mohsan was refused.

Commodore

continued from page 1

The suit covers alleged theft in May and June, referring to secret material about a business machine based around the Z8000 chip planned by Commodore for next year.

The action is seen as part of the increasing bitterness between Commodore and its former founder Jack Tramiel, whose company, TTL, has taken over Atari. Several former Commodore senior executives are now working for Tramiel, including David Harris, a former Commodore vice-president, now sales vice-president at TTL.

Mastertronic takes over Carnell

MASTERTRONIC has come to the rescue of Carnell Software, who went into liquidation last month, (see *PCW*, 21 June).

It has set up a new company, Innovision to market Carnell's *Wrath of Magra* and *Black Crystal* games. It is not yet known if Carnell's *Volcanic Dungeon* is also included in the deal.

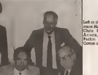
The two games will be sold at their original price — £11.95 for *Magra*, with the book included, and £7.50 for *Black Crystal*. These prices are the main reason Mastertronic will not market the games under its own name — wishing to keep Mastertronic as a budget-price software label.

"Stuart Galloway, Roy Carnell and Stephen Kirk will be programming for us as part of Innovision," said Mastertronic chairman Frank Herman. "They will be producing adventure games, which we intend to market at full price."

BBC stays with Acorn

A NEW four year contract has been signed between Acorn Computers and the BBC.

The agreement means that Acorn can continue to use the BBC name on its top selling product — the BBC Model B micro computer.



Left to right: Hermann Hauser and Chris Curry of Acorn, Bryon Parkin and Bill Cotton of the BBC

The signing also ends months of speculation that the BBC might take the opportunity presented by the expiry of Acorn's existing agreements to include other manufacturers.

A number of companies including Sinclair and Dragon have in the past shown interest in gaining the lucrative BBC contract.

Following last week's signing Acorn is planning to expand its manufacturing and distribution of the Model B machine. It has also begun an export drive to sell the machines in the US and the Germany and Benelux areas of Europe. Manufacturing facilities are being set up in Australia, India and China.

"Acorn is planning to develop more power add-ons for the BBC to take it into the 16-bit and 32-bit computer range," said an Acorn spokesman.

"The BBC contract has become a very significant one for Acorn — in the beginning the Model B was seen as a fairly minor machine."

Robin Hood on the Spectrum

THE legend of Robin Hood has been turned into an adventure game by Nottingham software house Runesoft.

Robyne Hode has over 400 locations, set in Nottingham and Sherwood Forest.

"We did a great deal of research to make the locations as authentic as possible," said John Flack of Runesoft.

"The city library had some maps, although none prior to 1610, so we consulted the Doomsday Book to see how the land would have looked."

The game uses landmarks apart from Sherwood Forest — part of the adventure takes place in the cave system underneath Nottingham castle.

Robyne Hode for the 48K Spectrum costs £9.95.

Imagine in hands of Receiver

THE Official Receiver has now been called in at Imagine Software.

The company was wound up on Monday, July 9, at the High Court in London, after Imagine failed to pay creditors VNU Business Publications £10,000 within a seven day time limit.

A creditors meeting has yet to be arranged, but until a receiver has been appointed, the Official Receiver in Liverpool is standing in.

But there is a long list of other creditors still waiting to be paid by Imagine including Kiltdale, a Gloucestershire duplication plant, Marshall Cavendish, still waiting for payment in the region of £250,000, Liverpool City Council, printers Henry Matthews and Son, United Arab Shipping, who own Tithebarn House, where Imagine occupied offices, Scatchards, a Liverpool wine merchant, where Imagine had an account and G D Studios, which produced cassette labels and artwork for the company. The total of debts from these companies is put at over £300,000.

Former Imagine directors Dave Lawson and Ian Hetherington — together with several ex-Imagine employees — are believed to be still continuing development of the two Megagames, for which they now own the copyright.

Bruce Everiss is in negotiations with an un-named, non-software company in Liverpool, regarding employment of other former Imagine staff.

Thorn EMI buys stake in Inmos

THORN EMI has paid £95m for a 76 per cent stake in Inmos, the government supported microchip company.

It may also buy the remaining 24 per cent, currently held by the company's three founders and its employees.

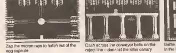


For the 48K ZX Spectrum

BRINGS YOU INTO THE ACTION WITH

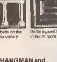


FACTORY BREAKOUT – For the 48K ZX Spectrum Help Zirky escape from the factory that's gone haywire Three screens of thrilling arcade action 100% machine code, super smooth animated graphics and amazing sound

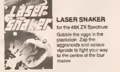


Zap the micron rays to hatch out of the egg capsule

Dash across the conveyor belts on the reject line – don t let the killer canary catch you!



Battle against the many weird monsters in the lift room



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Strong offence

While I have great respect for Boris Allan, I found his Ziggurat in Vol 3 No 25 incredibly biased and inaccurate

As a computer journalist that has written reviews for over 80 software packages and books and know a large number of similar reviewers, I take strong offence at the laissez-faire attitude he believes that we take when performing our work.

I agree with him that all reviews should have the reviewer's name assigned to them, but cannot agree with his comments that most reviews fall into his Fab (front and back) category, where the reviewer just reads the title page and the back cover copy. My feeling is that Boris is unsportingly smarting still from reviews of his latest book on the QL.

Come on now, Boris, don't let some sour grapes spoil what is otherwise an excellent vineyard of articles from your pen.

Clive Gifford
18 Edward Way
Ashford
Middx

Variable names

I felt I must reply to Julian Skidmore's letter in the June 28 issue about the 'latest' Spectrum bug

Yes, Julian deserves a 'silver' medal for noticing the bug in the way the Spectrum (and the ZX81) gets confused over variable names that have 'embedded space characters'. For example

```
LET ANSWER 1
PRINT ANSWER JULIAN
which gives 1
```

So what is the problem? Well, the space character is taken to mark the end of the variable name, and if there is already a variable that matches exactly then its value is used — Oh dear!

For those that are interested, look carefully at Page 142 (8 lines from the bottom) of The *Complete Spectrum Rom Disassembly* by Dr Frank O'Hara and myself.

I would like to hear from anyone with other 'new bugs'

Ian Logan
Skellinthorpe
Lincoln

PS. Reassure Graham Taylor that QL *Quill* really works, this letter is actual proof!

Never again . . .

As a subscriber to your excellent paper I would like to draw attention to the editorial in the June 28 issue which states "This magazine does not carry adverts for tape copiers." Yet on page 50 there is a half-page advert from a company called Micro Centre which includes a large section on back up tape copiers.

It seemed to me rather inconsistent. You should practise what you preach.

Wishing your application every success

James Turner
Little Barn
Longcross Hill
Arford Headley
Hants

Needless to say we have received a considerable volume of correspondence on this subject. Our editorial policy stands, we do not carry ads for tape copiers. The offending advert to which you refer will not be carried again in that form.

A mixed blessing

Thank you for noting our timely arrival at Rumbelows. I would like to point out that the RRP of the games/educational stuff is £7.95 — and that *Electro Freddy* has been done an injustice at £4.95 on Page 54 of Issue 26

To be given in your news piece an accolade in the same breath as the lamented — and nearly mythological — Dragon (who now also appear to have produced the "Dragon 36" (sic)) is perhaps a mixed blessing. Maybe you would cheer us all up by noting that IBM too has a reputation for delivering when it says it will.

Congratulations to the Granniad of Little Newport Street. It's quite comforting to know of others who make the occasional typo too. Valhali indeed! Yuors sincerely,

William Poel
Amsoft
Brentwood House
169 Kings Road
Brentwood
Essex

"Isn't that Barry Norman's signature?"

What's happening?

I've now been buying your magazine for two years, and have seen it change from a user's magazine to more of a games mag, for people who like playing video games on their computers

I've noticed this with most magazines. What's happening? Has the country gone video games mad? Games adverts, joysticks, cartridges, games reviews etc. It's nothing but games, games and stupid, boring games. If people want games then why don't they buy Atari VCS's or other equivalents — not computers

Not that I'm implying that people who buy computers must program, they can do what they like. But why do others who want to do something constructive with their machine have to suffer by purchasing magazines and not being able to find the information other than games listings and adverts.

I was also disappointed at this year's Earl's Court Computer Fair. On paying three pounds I entered an arcade. I felt regretting I had ever entered, with explosions and laser sounds still buzzing in my ears. Why didn't they rename it 'Video Games Fair', because that's all there was

Christopher Owczarek
Feldon
Cock Lane
High Wycombe
Bucks

Crosser and crosser

Just though I'd write and tell you how angry I am after reading your June 28 issue. Yet another chemistry symbols program! Why? It makes me seethe

Have you not published enough of these tried and (yawn) tested programs. It makes me angry. So angry I could break my pen in half.

Mr Angry
18 Whitercse Avenue
Dalton
Huddersfield
Yorkshire

Deserved success

The QL is here! I ordered it in the middle of February and received it on the 22nd of June (promised delivery date of end of June). It came with the revised AH operating system stored internally (ie, no Eprom) and seems to have most bugs corrected. The Basic and microdrive access seems to have been considerably speeded up (*Quill* (80K) loads in 30 secs compared with two minutes for the pre-production model). It came with a comprehensive User Guide with beginners guide and keyword dictionary

One tip that I've found is that pressing CTRL & F5 during listing acts as a stop/start toggle. I've managed to interface my Brother EP 22 with built in RS-232C with the QL — it requires OPEN #3 seric and BAUD 300 to print to Channel 3

Superbasic highlights structure and puts BBC Basic in the shade — I was also impressed by the speed of the graphics and flexibility of their syntax. The Psion packages seem to be tremendously good value, utilising power with a good user interface

All in all, the QL, in my view, deserves all the success it will no doubt receive

R Snowdon
6 Bousfield Crescent
Newton Aycliffe
Co Durham



Turf luck

You can bet Neil Watson's horse racing game for the 48K Oric will be a winner

If you have ever wondered what attracts people to the atmosphere of the race course then this is your chance to find out. *Turf luck* is a two stage horse race program for the 48K machine. During the first stage you are given details of horses' names, ages, starting prices and of the race course (name, going). From these details you must decide how much of your money to bet and on which horse to place your bet. Your ultimate aim is to break the bank.

During the second stage you must sit back and watch your horse run against its nine rivals in the race. Your horse is identified by its colour being different from the rest. After the race has finished your money is updated and you are able to try again in the next race if you have any money left.

Line comments

0001 - 0005	Set up horses' names
0006 - 0010	Set up constants
0020 - 0040	Set up odds and ages
0040 - 0115	Set up screen 1
0120 - 0130	Set and chosen horse routine
0165 - 0330	Race handling routine (screen 2)
0335 - 0360	Decides race winner and displays name
0370 - 0430	Calculates and outputs winnings
0480	Check if bank is broken
0500 - 0530	Calculates and outputs losses
0580	Check if you are broke
0700 - 0750	Decides which race course
0760 - 0820	Decides going for the race
0900 - 1000	Redefine characters routine
1010 - 1300	Sets colour of your horse to red
0210	Set up sound channel 1
0350	Play sound channel 1 with envelope

Program notes

lines 1-16	Initialise variables
lines 20-40	Routine for set up ages and odds of horses
lines 46-160	Betting shop routines
lines 170-330	Race course routines
lines 335-368	Decide winner routine
lines 369-645	Winnings calculations
lines 641-820	Race course and going subroutine
lines 900-980	Define characters subroutine
lines 989-1008	Initialise horse vertical positions
lines 1010-1050	Set colour of chosen horse to red

Variables

D(8)	Horse horiz. coordinate
N(11)	Horse vert. coordinate
HIGHEST	Bank limit
M	Your money
A(10)	Horses' odds
H(10)	Horses' odds
W(10)	Horses' ages
L$	Name of race course
G$	Going
H$(10)	Horses' names
S	Your bet
C$	Horse's odds
I	Loop variable
N	Winner's vert. coordinate
T	Winner's horiz. coordinate
Q$	Winner's odds
W	Your winnings
A	Data loop variable
SS,UU	Random number variables



```
0 REM **ITV SEVEN.....N.WATSON..1983**
1 H$(1)=" A BLUE BOY   " H$(6)=" F GOOD LUCK "
2 H$(2)=" B NEW EXPRESS" H$(7)=" G LINCON     "
3 H$(3)=" C YOUNG INCA " H$(8)=" H DAYLIGNT  "
4 H$(4)=" D QUICK WORK " H$(9)=" I NEW WOOD  "
5 H$(5)=" E HEARTWOOD  " H$(10)="   RED RUM   "
6 CLS GOSUB900 GOSUB999
7 PRINT
8 DIMD(60)
9 HIGHEST=INT(RND(9)*100000)+1
10 M=2000 DIMH(10)
15 PRINTCHR$(17),CHR$(6)
20 FORI=1TO10
25 A(I)=INT(RND(1)*9)+1
27 W(I)=INT(RND(1)*15)+2
30 H(I)=INT(RND(1)*9)+1
35 IFH(I)=1THENH(I)=2
36 IFA(I)=H(I)THEN25
40 NEXTI
48 PRINT
50 PRINT"YOUR MOEY _" M" BANKS LIMIT _" HIGHEST
51 PRINT:PRINT"YOU NEED _":HIGHEST-M" TO WIN"
52 GOSUB700
53 OE$="D"
60 PRINT PRINT PRINT PRINTL$," RACE COURSE.
GOING " G$
65 PRINT
70 PRINT"CODE   NAME"SPC(10)"ODDS   AGE'
80 PRINT
90 FORI=1TO10
100 PRINTH$(I)SPC(3);H(I) "/" A(I)"   ",W(I)
110 NEXTI
115 PRINT
120 INPUT"PLACE YOUR BET _":B
125 IFB>MTHENPRINT"NO MONEY REPLACE BET" GOTO12
130 INPUT"ENTER HORSES CODE ",C$
165CLS
170 PRINTSPC(10):L$
180 PLOT0,1 0
200 GOSUB 1010
210 SOUND1,8000 0
211 D(1)=2 D(6)=2 D(11)=2
212 D(16)=2:D(21)=2
213 D(26)=2 D(31)=2 D(36)=2 D(41)=2
214 D(46)=2 D(51)=2
250 FORI=1TO38 PLOTI,1,"z":NEXTI
251 FORI=1TO38:PLOTI,22,'z" NEXTI
252 PLOT35,21,"(" PLOT25,0,"/"
253 PLOT6,21,"(" PLOT6 ,0,"("
280 FORI=1TO50STEP5
285 PLOTD(I) M(I),"  "
290 D(I)=D(I)+INT(RND(1)*2)+1
320 IFD(I)>35THENN=M(I):T=D(I):GOTO335
325 PLOTD(I),M(I) "!>"
326 NEXTI
329 PLAY1,0,6,200
330 GOTO280
335 Q$="A" PLAY0,0,0,0
336 IFN=2THENF=1 Q$="A"
340 IFN=6 THENF=3 Q$="C"
350 IFN=20THENF=10 Q$="J"
355 IFN=8 THENF=4 Q$="D"
360 IFN=10THENF=5 Q$="E"
361 IFN=12THEHF=6 Q$="F"
362 IFN=14THEHF=7:Q$="G"
363 IFN=16THEHF=8:Q$="H"
364 IFN=18THENF=9 Q$="I"
365 IFN=4THENF=2 Q$="B"
366 PLOT10 10  H$(F)
367 WAIT150
368 IFC$<>Q$THEN500
370 W=INT((H(F)/A(F))*B)
380 W=W+B M=M+W
390 WAIT150
400 CLS
410 PRINT:PRINT:PRINT PRINT PRINT
420 PRINT "YOUR WININGS ARE ";W
430 PRINT "YOUR HAVE NOW _" M
440 IFM>HIGHESTTHENPRINT"YOU HAVE BROKEN
THE BOOKES!! YOU HAVE WON"
:END
445 WAIT150 CLS
450 GOTO20
500 M=M-B
505 CLS
510 PRINT:PRINT PRINT:PRINT:PRINT PRINT
520 PRINT,'YOU HAVE LOST _',B
530 PRINT,"YOU NOW ONLY HAVE _':M
540 IFM<=0THEN END
545 WAIT150:CLS
550 GOTO20
641 IF F<>5 THEN J(X)=0 Y=X+1
700 UU=INT(RND(1)*4)+1
710 IFUU=1THENL$="SANDOWN"
720 IFUU=2THENL$="CHESTER"
730 IFUU=3THENL$="RIPON"
740 IFUU=4THENL$="GOODWOOD"
750 IFUU=5THENL$="HEREFORD"
760 SS=INT(RND(1)*4)+1
770 IFSS=1THENG$="FIRM"
780 IFSS=2THENG$="GOOD"
790 IFSS=3THENG$="GOOD TO FIRM"
800 IFSS=4THENG$="SOFT"
810 IFSS=5THENG$="GOOD TO SOFT"
820 RETURN
900 DATA#3F #3F,#12 #12 #12 #12 0,0
905 DATA#1C #14 #1C 8 8,8,8 8
909 DATA 2 2 2 6 #0F #0F #14 #22
910 DATA #0F #0E #27,#0F #3C #38 #14 #22
920 FORI=47056TO47087
930 READ A
940 POKE I,A
950 NEXTI
960 RETURN
999 DIMM(51)
1000 M(1)=2 M(6)=4
1001 M(11)=6 M(16)=8
1002 M(21)=10 M(26)=12
1003 M(31)=14 M(36)=16
1004 M(41)=18 M(46)=20
1005 M(51)=22
1006 RETURN
1010 PAPER3 INK0
1011 FORI=1TO50STEP5
1012 F$=CHR$(65+G)
1013 IF F$=C$ THEN PLOT 0,M(I) 1
PLOT34,M(I),0
1020 G=G+1
1030 NEXTI
1040 G=0
1050 RETURN
```

Taking no chances

Graham Taylor *talks to the kings of budget software, Mastertronic*

If you buy software you cannot fail to have noticed the fact that Mastertronic is doing rather well.

The reason has something to do with — but is not explained by — the fact that Mastertronic games cost £1.99.

The company's rapid expansion suggests that people like the programs but the company remains controversial — its pricing policy received a hostile reception from the rest of the industry.

I talked to its director Martin Alper and he put up a spirited defence of the company and its objectives. "There's no doubt that we are pretty unpopular amongst the software houses trying to sell their titles at £5.95 — they say that we set a dangerous precident and that if all software houses were forced to drop their prices to similar levels by our actions it would reduce the amount of innovation and experimentation.

"But it's simply untrue. From the profits we make a large amount will be 'put back' to be used as investment capital on new projects — Mastertronic is just the start."

You can see where criticism comes from though. For a long time the commonly held belief (and magazines are as much to blame as anyone) was that issuing games at £1.99 was simply a way of getting rid of fairly poor quality material.

When I finally go around to looking at some Mastertronic games it was something of a revelation — none of them were awful and some were actually very playable. At £1.99 they were excellent value. The problem so far as the press is concerned that 'good value' pure and simple is not really something that inspires great reams of enthusiastic prose — being neither a wonderful technical achievement nor an appalling waste of money is the best way to ensure you get no press coverage at all.

"... up the quality"

"It has been a problem," admitted Martin "but we're going to change all that — we've made some money now and we're going to up the quality."

Four new games are on the way — still at £1.99 — *Chiller* for the 64, *Psycho Shopper* on the Vic, *Thunderball* on the BBC and *Alcatraz Harry* on the Spectrum. Martin says each is equal to anything currently available at full price on their respective machines. *Alcatraz Harry* is a complex game mixing arcade, adventure and strategy — it has dozens of different screens of — action and *Chiller* is loosely based on *Thriller* by Michael Jackson.

With their current success Mastertronic can now afford to push up the quality. "A good programmer can easily make more money by coming to us and getting a royalty on £1.99 rather than going elsewhere and getting a share of £5.95 — the reason is simple we sell many more copies and our distribution is worldwide." Its American distribution takes in 6,000 outlets including hifi, computer and video shops. The video link is particularly interesting. You can't go into a video rental shop these days without seeing the Mastertronic range.

Mastertronic see the American market as particularly important. "We're are moving half of our operation to the US and we will be bringing out souped-up versions of some of the range there on disc." In America Martin also hopes to repeat the success of the British operation in getting the games into supermarket chains like BHS, Asda and Tesco. "The problem with the conventional retail outlets," he says, "is they don't encourage the impulse purchase — supermarkets are much better at that."

Financial success means that Mastertronic are now in the market for acquiring software houses. Their timing couldn't have been better with many companies in a precarious position after disappointing winter sales and so far a disastrous summer. Mastertronic has already taken over Galactive software and a deal with Camel Software is currently being finalised. "What we are buying is talent — plenty of companies have failed not because they lack programming expertise but simply because they had no marketing skills — we can put that right."

If Martin is right, Mastertronic could end up having an incredible hold on the market. Which is either wonderful or awful depending on your degree of paranoia. I put the case for the paranoids and asked whether the £1.99 price tag didn't put and end to 'big projects', the *Hobbits* of that world that come complete with manual and box.

"It's certainly true that you can't do expensive packaging for a £1.99 game and it's also true that at the moment we aren't doing technically earth shaking stuff but there will be other companies we run other than Mastertronic which will be different. The keynote will always be excellent value for money, but we are planning, for example, a company doing discs for about £5.99 which would allow for packaging and more sophisticated programs — the next few months will prove that we can now put out games as good as anyone else's for £1.99. There won't be any element of apology anymore — they'll be cheap and excellent.

"People say we aren't taking any chances as though it were a crime, well it's true we don't take chances — before we put out a new title we do market research and we do that research on a worldwide basis." According to Martin that research tells him that, amongst other things, MSX is going to do well. "We are certainly doing MSX material, there may be some doubts about what happens to MSX in this country where the computer buying habits are probably less conservative. But everywhere else there is a vast untapped market of potential computer buyers who will be reassured by a name they know like Sony, or JVC."

"... cheap and excellent"

You will not be surprised to learn that the MSX working party are rather interested in Mastertronic. MSX is likely to end up wherever the company brand names are stocked — hifi shops, electrical retailers, chains. And who is already in there? Mastertronic — draw your own conclusions.

I never have liked the idea of a small number of large companies dominating markets but then I am always a foolish romantic on these matters anyway. What is undeniable is that a lot of kids can afford £1.99 who can't afford £5.95 or more and now they can buy a lot more programs for their machine (instead of copying them from friends). If Martin is right about the market, Mastertronic games could get better and better. Also if Mastertronic succeed at this then a lot of likeable and talented people are going to go out of business — all part of capitalism's rich tapestry.

Martin Alper wants to have his cake and eat it — he wants to sell you whatever you want to buy as cheap as he can whilst still making a large profit. But he is a man with ideas. "Did you know that in the far east they have Roms that can handle far more than 32K? — more like 100K in fact. Everyone thinks that 32K is the limit for a Rom but it's only the large degree of capital investment in tooling up required to produce bigger Roms that is holding things up. Supposing I could produce games which came in Rom form and used 100 or more K for, say, £9.99. Really wonderful, complex games, do you think people would buy them?"

I think they probably might.



From
GILSOFT
The Welsh Wizards of Adventure
THE QUILL
ADVENTURE WRITER
SPECTRUM 48K
AND
GILSOFT

Redskins v Raiders

Program *Superbowl* **Price** £6.95 **Micro** Dragon 32 **Supplier** Cable Software, 52 Lunbury Rd, Luton, Beds LU3 2PL.

This is an arcade game based on American football. The player controls Floyd presumably a Raider, Redskin, Rowdy or some such animal, going for the touchdown. Each play ends when four stops have occurred, each of which is either a successful touchdown or a tackle which has brought Floyd down. At the end of the play the score is displayed as yards run, average yards run, number of touchdowns and missed catches.

The graphics are quite good, representing an overhead view of the field with Floyd running up the screen and the opposition appearing from the top. The yard lines come down the display as he continues his run. The game is controlled by one joystick and a speed up option is available.

Essentially, *Superbowl* is a variation of *Space Invaders* with a sports overlay. The interest depends on a knowledge of American football so that the scoring has an imaginative impact making players feel that they are simulating a favourite sport. My son, who enjoys arcade games a lot found this one disappointing because it was very simplistic compared with other offerings on the market. There is no secondary screen or other challenge. It rather looks as though it is so close to an arcade game that the play runs for as short a time as possible before it needs another coin. Despite its good graphics, this lack of variety will limit the length of one's interest.

Derrick Trueman

Waves of attackers

Program *Orc Attack* **Micro** Commodore 64 **Price** £7.95 **Supplier** Thorn EMI, Film House, 142 Wardour Street, London W1

In *Orc Attack* from Creative Sparks you find yourself in the role of Sir Eric the Brave, who has to defend the battlements of his castle against the attacking hordes of Orcs.

The attackers come in waves, each one more determined than the last. Most of the Orcs attempt to scale the castle walls and set about Sir Eric with their daggers. However, a few remain on the ground and fire their lethal crossbow bolts at him. Sir Eric can defend himself by dropping rocks on his attackers, or by beating them off with his broadsword, or by pouring down burning oil.

Quite an entertaining game, but all the attack waves are basically the same and all the action occurs against the background. It soon becomes rather repetitive, the graphics and sound are OK, but lacking any real variety. This game is unlikely to become a favourite.

Richard Corfield

Downhill slalom

Program *Horace goes Skiing* **Price** £5.95 **Micro** Dragon 32 **Supplier** Melbourne House, Church Yard, Tring, Herts HP23 5LU

Hungry Horace has arrived on the Dragon 32 and is off on another challenge. This time he sets off with £40 in his pocket with which to go skiing. He has first to cross a busy road to hire his skis at £10 a time and cross back over the road to the ski slope. It will cost him another £10 in ambulance fees if he gets knocked down. Once back safely to the ski slope, he has to negotiate a downhill slalom course. Points are lost for failing to stay within the flags and if he hits too many trees on the way down, his skis are broken and he has to cross the road again to hire new ones. If he is successful, more points are awarded and he must then cross the road to the next, more difficult, slope. The game ends when he runs out of money.

This is an excellent game with superb graphics. Obviously, it is basically a mixture of *Frogger* and the 'steering through obstacles' type games but it is packaged excellently. The use of colours on the Dragon is fresh and bright and the images (particularly the cars) and sound very good.

There is, however, a cheat factor. Points are gained for crossing the road, of course, but they can also be gained by a run out into the traffic and back again to the start point. The astute player can work wonders with his score with that. The game is long enough and varied enough for enjoyment to last; the graphics are excellent and it seems to have been put together with that little extra flair that makes it instantly attractive.

Derrick Trueman

Capture the answer

Program *Frac Attack* **Price** £8.95 **Micro** BBC B **Supplier** Shards Software, Roycraft House, 15 Linton Road, Barking, Essex

If you cringe (as we did) at slogans like 'Fractions need never be boring again' keep reading: *Frac Attack* makes it true. Honestly!

Shards have come up with a real winner in this part of their 'Fun to Learn' series. There are six games — yes games, not exercises — to help you practise fractions. All six load up at once so you move rapidly by a menu from one to another. Each offers different levels of difficulty and the top ones are really tough. The company say this is for 9-15 year olds but we know plenty of over 21s who would learn from this package.

The best game is *Frac Attack* itself, where in a minia-

continued over the page

ture 'Rocket Raid' type scene you have to work out a fraction, than bomb two wrong answers and capture the right one. The screen scrolls very quickly and getting the answer right is the easy bit — hitting your targets is much harder.

The silliest game is *Hungry Radish*. He will eat the person of your choice — if you choose the larger of two fractions correctly.

There's lots of colourful screen action in the Mode 7 scenes, blips, boops and a nice tune when you succeed. A running score tells you how well you're learning — in case you'd forgotten the purpose of the fun, as well you might. Too noisy for schools perhaps, but superb for the home.

Dave & Jan Waterson

Correct choice

Program *Readright* **Micro** BBC B **Price** £9.95 **Supplier** Daco Software, 59 Mackenzie Road, Moseley, Birmingham B11 4EP

Hallo. That's the friendly greeting at the start of this educational package. You can find this spelling in a dictionary but it is not the one in everyday use. Unfortunately a minus mark for an otherwise good educational package for parent and primary school child working together.

Someone who can read has to help the learner by checking that he or she is correctly pronouncing the words offered. *Readright* will check whether the words are used properly in simple sentences. If the choice is correct a smiling face appears, happy notes are played and the word is nudged into its place in the sentence. If the choice is wrong a sad face appears, miserable music plays and the word is booted off screen.

The way the words are built up is the key to the *Readright* approach. The words are assembled from phonetic groups giving the child practice in the sounds of each letter.

Readright is structured, sensible and very effective.

Dave and Jan Watterson

Break the code

Program *Operation Safras* **Price** £7.95 **Micro** Dragon 32 **Supplier** Shards Software, Roycraft House, 15 Linton Rd, Barking, Essex

Here is a game to drive you crazy — the follow up to *Pettigrew's Diary* using the same format. *Operation* Safras is an adventure game in three sections featuring secret agent Pettigrew who this time has to save his fellow agents who are in terrible trouble all over the British Isles, then rescue the legendary Safras sword and finally return it to its rightful place in the Safras caves. No progression can be made anywhere until the current problem is solved. But these are not just maze problems. Far from it.

In the first section some 'animated' graphics set up a challenge, then a password has to be found to avoid drowning. This is followed by a memory test and a further code problem. Failure causes recycling back to an earlier position with no little frustration. The second section, which is text only is an 'Against the clock' part and involves locating and rescuing five agents scattered somewhere in Britain armed only with a geography lesson from the program. All this leads eventually to the rescue of the sword. The third section is split into eight separate challenges graphically presented with each preceding by a text screen until the world is saved once more.

The problem with these games is that once the problem is solved, it's over and there is no more to be done with it. But the time involved in solving this one and the variations in the types of problem presented, let alone the quality of the graphics and sound make this one worth having. They are even giving away a free music tape. Pettigrew needs your name and address!

Derrick Trueman

Planet to planet

Program *Star Trader* **Micro** 48K Spectrum **Price** £6.95 **Supplier** Bug-Byte, Mulberry House, Canning Place, Liverpool.

Strategy games got off to a bad start for the first year and a half of the Spectrum's life. They were mostly badly written unexciting Basic games.

Now here comes *Star Trader* from Bug-Byte. The idea behind the game, is that you move from planet to planet, buying goods where they are cheap, and trying to sell them at a profit. As with other strategy games, this part is fairly simple, with rather few variations. There is, though, the added excitement of an occasional arcade-type interlude (I mean a real arcade game, unlike the so-called arcade game in *Mugsy*). In this the graphics are good, the action fast, and I have yet to win.

There are several features, though, which spoil what is an otherwise good game. When you earn much more than 100 000 credits, (which, with practice, does not take more than about an hour), the computer ends the game – not because you have won, or because you have done something wrong but because of a revolution somewhere in space, with which you are totally unconnected. Yet you are killed – and of game. This really does seem unfair and it removes the incentive to do as well as you can.

Surprisingly for Bug Byte, the character set is not redefined and, in a game like this, this would be quite an improvement. Sound, too, is all but nonexistent.

Nevertheless, this game is of more lasting interest than almost any arcade game that I can think of simply because, to play it, you need your mind as well as your reactions.

David Lester

No throw!

Program *Athlete* **Micro** 48K Spectrum **Price** £5.50 **Supplier** Buffer Micro Road, 310 Streatham High Road, London SW16

Running, hurdling and throwing the hammer are all part of a day in the game of life of an *Athlete*. The game is different and for that reason alone it should deserve a place in the dedicated Spectrum owner's library. Unfortunately, though, there are problems that will put off many potential buyers.

To start with, the good points. The game, a blend of Basic and machine-code, has good graphics and generally works well. I liked especially the way the runners' movement was done. The author has done well to turn a physical sport like athletics into a computer game, giving you a fixed store of energy, and allowing you to decide how fast you will use it. Go too fast, and your athlete collapses exhausted, too slow, and you finish last!

Sadly however, the game is not bug free: it got into one endless loop at the Menu stage, and suffered a system reset during the events themselves. Possibly this was in disgust at my 'No Throw' in the Hammer, but I think it is more likely to be a software problem than game feature.

Lastly, the Menus are long and involved, and the events limited: 100m and 400m along the flat and hurdles, and the Hammer Throw.

Athlete is a good try, but if the problems can't be sorted out it will have to rank as an also ran.

Simon Springett

Straight flush

Program *Poker* **Micro** Commodore 64 **Price** £6.95 **Supplier** Tom Pinone Puzzles, 14 Granby Avenue, Harpenden, Herts

It is debatable whether computerised card games work — why not just get a pack of cards and play the game for real?

However, playing the computer at *Poker* does have some advantages — not least you do not play for real money. This version of poker, by Tom Pinone, is set in a Western saloon, and your six opponents are given suitable names: Matt Dillon, Billy the Kid and Black Jake.

The deal rotates round the seven players and the screen shows the cards being dealt face down in front of each person. When the deal is complete your cards are turned over for you to see. The game then follows the rules of poker with each player taking it in turn to raise, stick or throw in the hand. The computer plays for your opponents, and will occasionally bluff, although it never cheats. You have to make your own decision but you can always ask the barmaid Moll for advice (by pressing a function key).

The graphics are sound are simple but perfectly adequate for the program. Instructions are provided including a brief explanation of the rules of poker.

This is really quite an enjoyable game and could provide a financially painless introduction to poker.

Richard Corfield

Kamikaze pilot

Program *Supercode II* **Micro** 16/48K Spectrum **Price** £9.95 **Supplier** CP Software, 17 Orchard Lane, Prestwood, Great Missenden, Bucks HP16 0NN

3D TANK DUEL provides exactly what you would expect from its title — a version of the arcade game *Battle Zone*.

The game shows the view from inside your tank looking out on the line-drawing features of flat plain, with the odd smoking volcano in the background. A turret radar shows the location of the opposing tank, and you are given subtle hints (like "Enemy Left") just in case you still don't know where to go next. The idea is to manoeuvre your own vehicle to the right place to zap the other tank, and then look out for the next one.

Difficulty is increased by the various objects scattered across the area which act as barriers to your fire — and as your score increases the enemy tanks adopt the tactics of sitting behind these barriers and only emerging to take pot shots at you. At irregular intervals a rocket-shaped UFO controlled by a Kamikaze pilot skims across the plain towards you adding to your problems.

There's not much more you can say about *3D Tank Duel*. I would recommend it as a very good version of the original, but I don't think you'll get addicted.

Simon Springett

Message to screen

Alan Mcdonald shows you how to print information to the screen in Part 2 of his machine-code adventure series

Las week we looked at how a mini adventure can be designed. We also wrote the database section of the adventure This week we shall look at the 'printing to screen' routines If you remember from last week, we had three types of data:
1) Locations,
2) Objects,
3) Messages
Each of the data is handled differently, therefore we need three different routines

Routine 1. Print message to screen.
Since this routine is the easiest we shall look at it first Refer to last week s issue and see how the messages were stored in memory

```
MTABLE  DEFB 255        seperator.
        DEFM "message"
        DEFB 255
```

and so on.

If you look at the first five messages in the message table you will see.

1) Ok.
2) You can't do that.
3) You can also see
4) Nothing.
4) What now?

Let s say we wanted to print message three to the screen. (You can also see) All we would do is

```
TLD B,3; The B register points to message three.
CALL PRINT The print message routine is called.
```

The actual 'Print' routine is not too difficult to understand Remember each message is separated by a '255' — Therefore we count 'B' '255's ie, if B=3 then we count 3 255's. The following flow chart should clarify things Also you should closely study this week's assembler listing

The other routines work in a similar way If you recall we used the variable X to store the current position of the player; ie, if the player is at location 5 then X would equal 5.

Routine 2. Print location to screen
Each location in the database is followed by a '255' and 6 other bytes, which represent the directions which can be moved to Each time a location is printed these values will need to be copied into their correct positions in the variable area. (NOR to DOW) Again study this week's assembler listing, pay special attention to the print location routine PLOC.

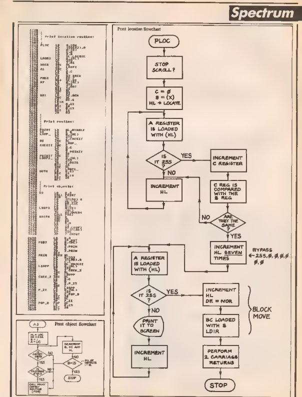
Routine 3. Print objects to screen
The print objects routine is the most complex of all three routines. Each time a location is printed, any objects which are visible there must also be printed, Therefore the print object routine must do the following.
1) A loop is started 14 objects = 14 passes.
2) If the object is not at the current location than consider the next object.
3) Can the object be printed, ie, is the existence 0 or 2 (see last week's issue.) The flowchart depicts the situation as does the assembly listing.

Next week we shall look at input and string manipulation.

Print message flowchart

PRINT
HL IS SET TO THE START OF MTABLE
C REGISTER IS SET TO 0 (COUNTER)
A REGISTER IS LOADED WITH (HL)
IS IT A 255 ?
YES
NO
INCREMENT THE C REGISTER
COMPARE THE C REG WITH B REG
ARE THEY THE SAME ?
NO
YES
INCREMENT HL
INCREMENT HL
A REGISTER IS LOADED WITH (HL)
IS IT A 255 ?
NO
PERFORM 2 CARRIAGE RETURNS
RETURN




Print location flowchart
PLOC
STOP SCROLL?
C = Ø
S = (X)
HL → LOCATE
A REGISTER IS LOADED WITH (HL)
IS IT 255 ?
YES
NO
INCREMENT C REGISTER
INCREMENT HL
C REG IS COMPARED WITH THE S REG
ARE THEY THE SAME ?
NO
YES
INCREMENT HL SEVEN TIMES
BYPASS ← 255,Ø,Ø,Ø,Ø Ø,Ø
A REGISTER IS LOADED WITH (HL)
IS IT 255 ?
YES
NO
INCREMENT HL DE = NOR
BC LOADED WITH S LDIR
BLOCK MOVE
PRINT IT TO SCREEN
INCREMENT HL
PERFORM 2 CARRIAGE RETURNS
STOP
Print object flowchart
A3
B=15
YES
NO
STOP



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Round the clock

Ian Logan presents a clock program that demonstrates a large number of the features of Superbasic

The Superbasic of the QL is very different from the popular Sinclair Basic found in the Spectrum, and it will take some time for a new owner of a QL to become fluent in its use.

The following program produces both 'analog' and 'digital' clocks and shows a large number of the features of Superbasic. Initially, you might think that the listing is more like one for the BBC microcomputer; and with respect to the manner in which Superbasic allows the use of named procedures, you would be correct. But, Superbasic allows a lot more than just the use of procedures.

So, taking each section of the program in turn.

Lines 100-290:

The procedure *Set* is defined. Mode 4 — the high definition mode — is selected so as to take full advantage of the QL's potential.

WINDOW 512,256 0 0 — creates a window of maximum size.

BORDER 30 — creates a border within the window of width 30 pixels.

CSIZE 3,1 — selects the largest of the standard type sizes.

CURSOR 0 100 — moves the cursor down 100 pixels within the available window.

SDATE 1984 6 1,h,m,s — the program cheats by using the function *Date$* to store the current time and the line sets *Date$* to the required time (on 1 June, 1984).

Lines 310-560:

The procedure *Face* is defined.

SCALE 200 150 100 — this line 'scales' the output window to give it 200 graphic lines (instead of 100) on its vertical scale. The origin of the bottom left corner is given the coordinates -150 -100 (so as to make the centre of the clock face be 0 0).

The screen is then cleared and three circles are drawn to represent a clock face.

The *For a — End for* structure in lines 400 to 580 uses the 'turtle graphics' of the QL to draw minute marks on the clock face at the required positions. The numbers are added to the clock face after this setting the print cursor to a suitable position (line 530).

Lines 580-680:

The procedure *Time* is defined.

This procedure contains a *Repeat — END REPeat* structure (lines 610-670) from which there is no exit. And, if the value of *Date$* is found to be changed — as it will be every second — the procedures *Watch* and *Digital* are called.

Lines 700-790:

The procedure *Watch* is defined. This procedure determines which lines of the clock face are to be re-drawn. If a hand is to be moved, then it is first overdrawn with white ink, before being re-drawn to its new position with black ink.

Lines 810-890:

The procedure *Hand* is defined. The procedure requires three parameters; i — the colour of ink to be used,

r — the angle *Turned* at the centre of the clock

l — the length of the lines to be drawn.

The Lines are drawn using the 'turtle graphics' of the QL.

Lines 910-960:

The procedure *Digital* is defined. This simple procedure prints the appropriate part of the *Newtime$*, after first suppressing an initial zero in this string of characters.

```
100 REMark      QL CLOCK
110 set
120 face
130 time
140 STOP
150 REMark ..........................
160 DEFine PROCedure set
170 MODE 4
180 WINDOW 512.256.0.0
190 PAPER 0
200 INK 7
210 CLS
220 BORDER 30
230 CSIZE 3.I
240 CURSOR 0.100
250 PRINT "Enter"
260 PRINT "Hours. Minutes. Seconds"
270 INPUT h.m.s
280 SDATE 1984.6.1.h,m.s
290 END DEFine
300 REMark ..........................
310 DEFine PROCedure face
320 SCALE 200.-150.-100
330 BORDER 0
340 PAPER 7
350 INK 0
360 CLS
370 CIRCLE 0.0.85
380 CIRCLE 0.0.52
390 CIRCLE 0.0.4
400 FOR a=59 TO 0 STEP -1
410 LINE 0.0
420 TURNTO a*6
430 PENUP
440 MOVE 46
450 PENDOWN
460 INK 0
470 MOVE 2+3*NOT(a MOD 5)
480 END FOR a
490 FOR a=330 TO 0 STEP -30
500 n=3-a/30+12*(a/30>2)
510 x=60*COS(a*PI/180)
520 y=63*SIN(a*PI/180)
530 CURSOR x-9*(n>9)+4*(n>I1).v
.-7.-9 540 PRINT n
550 END FOR a
560 END DEFine
570 REMark ..........................
580 DEFine PROCedure time
590 s1=99: m1=99: h1=99
600 oldtime$=""
610 REPeat update
620 newtime$=DATE$
630 IF newtime$=oldtime$ THEN NEXT
update
640 watch
650 digital
660 oldtime$=newtime$
670 END REPeat update
680 END DEFine
690 REMark ..........................
700 DEFine PROCedure watch
710 s=newtime$(19 TO 20)
720 m=.5*(s>29)+newtime$(16 TO 17)
730 h=INT(5*(m/60+newtime$(13 TO 14
)))  740 IF h1<>h THEN hand 7.h1.25
750 IF m1<>m THEN hand 7.mI.40
760 hand 7.s1.15: hand 0.s.15
770 hand 0,m.40: hand 0.h.25
780 s1=s: h1=h: m1=m
790 END DEFine
800 REMark ..........................
810 DEFine PROCedure hand (i,r,l)
820 LINE 0,0
830 TURNTO -6*r+90
840 PENUP
850 MOVE 5
860 PENDOWN
870 INK i
880 MOVE 1
890 END DEFine
900 REMark ..........................
910 DEFine PROCedure digital
920 digit$=newtime$(13 TO)
930 IF digit$(1)="0" THEN digit$(1)
=" "940 CURSOR 40.220
950 PRINT digit$
960 END DEFine
970 REMark ..........................
```

Character designer

Mark Lawrence provides a two part machine-code program to help you define graphics on the BBC

Most home micros now have the facility available to define your own graphics, but this usually involves sitting down with a piece of graph paper, designing your characters and then calculating the relevant numbers that have to be stored in a place in memory, set aside for such a purpose. This character generator will relieve you of this tedious task since it allows you to develop and modify your designs and then save them to tape for later use.

The program offers the following facilities as well as the actual designing of the character:
Rotate clockwise 90 degrees, Mirror character, scroll character (up, down, left or right), invert, save to tape and load from tape.

To keep the program compact and to add speed I have written it as machine code. Unfortunately, since it uses a Mode 1 screen, 32K ram is required which means it will not work on an unexpanded Model A.

Before entering the first part of this two-week program switch the machine off then on and enter *page=page+3000* Now enter the program and save it.

The second part of this graphics utility will be printed next week.

```
10FORN%=0TO2STEP2
20P%=&E00
30[OPTN%
40.START JSR SET
50LDA #1
60STA FLAG
70LDA #4
80STA Y1
90STA X1
100LDA #4
110LDX #1
120JSR &FFF4
130.LOOP JSR CURS
140LDY#0
150LDX#0
160JSR AT
170JSR &FFE0
180BCC OV1
190CMP #&10
200BNE OV1
210LDA #&7E
220JSR &FFF4
230JMP RETN
240.OV1 CMP #139
250BNE OV2
260JSR UP
270.OV2 CMP #130
280BNE OV3
290JSR DO
300.OV3 CMP #136
310BNE OV4
320JSR LE
330.OV4 CMP #137
340BNE OV5
350JSR RI
360.OV5 CMP #98
370BNE OV6
380INC FLAG
390LDA FLAG
400AND #1
410STA FLAG
420.OV6 CMP #81
430BNE OV7
440JSR PUT
450.OV7 CMP #73
460BNE OV8
470JSR INVERT
480.OV8 CMP #80
490BNE OV9
500JSR PICK
510.OV9 CMP #69
520BNE OV10
530JSR UPS
540.OV10 CMP #68
550BNE OV11
560JSR DOS
570.OV11 CMP #71
580BNE OV12
590JSR LS
600.OV12 CMP #72
610BNE OV13
620JSR RS
630.OV13 CMP #82
640BNE OV14
650JSR ROT
660.OV14 CMP #77
670BNE OV15
680JSR MIR
690.OV15 CMP #76
700BNE OV16
710JSR LO
720.OV16 CMP #83
730BNE OV17
740JSR SA
750.OV17
760JMP LOOP
770.RETN LDX #0
780LDY #0
790JSR AT
800LDA #4
810JSR &FFF4
820 RTS
830.SET LDA #22
840JSR &FFEE
850LDA #1
860JSR&FFEE
870LDX #2
880LDY #4
890JSR COL
900LDX #3
910LDY #6
920JSR COL
930LDX #129
940LDY #3
950JSR IP
960LDX #4
970JSR PSPC
980LDX #131
990LDY #0
1000JSR IP
1010LDX #10
1020JSR PSPC
1030LDX #130
1040LDY #3
1050JSR IP
1060LDX #17
1070JSR PSPC
1080JSR GRID
1090JSR ALP
1100JSR LI
1110LDX #131
1120LDY #0
1130JSR IP
1140RTS
1150.COL LDA #19
1160JSR &FFEE
1170TXA
1180JSR &FFEE
1190TYA
1200LDY #4
1210JSR &FFEE
1220DEY
1230BNE COL+12
1240RTS
1250.PSPC LDY #40
1260.L0 LDA #32
1270JSR &FFEE
1280DEY
1290BNE L0
1300DEX
1310BNE PSPC
1320RTS
```

```
1330.IP LDA #17
1340JSR &FFEE
1350TXA
1360JSR &FFEE
1370LDA #17
1380JSR &FFEE
1390TYA
1400JSR &FFEE
1410RTS
1420.CHAR LDX #9
1430LDA STORE-1,X
1440JSR &FFEE
1450DEX
1460BNE CHAR+2
1470RTS
1480.SWAP LDX #58
1490DEX
1500PHP
1510LDA STORE+9,X
1520LDY &C00,X
1530STA &C00,X
1540TYA
1550STA STORE+9,X
1560PLP
1570BNE SWAP+2
1580RTS
1590.GRID JSR SWAP
1600LDY #0
1610LDX #131
1620JSR IP
1630LDA #31
1640JSR &FFEE
1650LDA #0
1660JSR &FFEE
1670LDA #5
1680JSR &FFEE
1690LDX #8
1700.L1 LDY #4
1710JSR AL
1720LDY #8
1730.L2 LDA #224
1740JSR &FFEE
1750DEY
1760BNE L2
1770LDA #225
1780JSR &FFEE
1790JSR &FFE7
1800DEX
1810BNE L1
1820LDX #8
1830LDY #4
1840JSR AL
1850.L3 LDA #226
1860JSR &FFEE
1870DEX
1880BNE L3
1890LDA #227
1900JSR &FFEE
1910JSR SWAP
1920RTS
1930.AL LDA #9
1940JSR &FFEE
1950DEY
1960BNE AL
1970RTS
1980.ALP LDX #0
1990LDA #31
2000JSR &FFEE
2010LDA #22
2020JSR &FFEE
2030LDA #6
2040JSR &FFEE
2050.L4 TXA
2060CLC
2070ADC #224
2080JSR &FFEE
2090LDA #32
2100JSR &FFEE
2110INX
2120CPX #32
2130BEQ OUT
2140TXA
2150AND #7
2160CMP #0
2170BNE L4
2180JSR &FFE7
2190JSR &FFE7
2200LDY #22
2210JSR AL
2220JMP L4
2230.OUT JSR &FFE7
2240RTS
2250.LI LDA STORE+57
2260CMP #127
2270BEQ OUT
2280CMP #0
2290BNE OV
2300JSR CHAR
2310JMP OV+3
2320.OV JSR &FFE3
2330INC LI+1
2340LDA LI+1
2350CMP #0
2360BNE LI
2370INC LI+2
2380JMP LI
2390.OUT LDA #INT(
(STORE+57)/256)
2400STA LI+2
2410LDA #(STORE+57)-256
*INT((STORE+57)/256)
2420STA LI+1
2430RTS
2440.CURS LDY Y1
2450LDX X1
2460JSR AT
2470JSR SWAP
2480LDY #131
2490LDX #2
2500JSR IP
2510LDA #228
2520JSR &FFEE
2530LDX #0
2540JSR IP
2550JSR SWAP
2560RTS
2570.PLUP LDY Y1
2580LDX X1
2590JSR AT
2600JSR SWAP
2610LDA #224
2620LDX X1
2630LDY Y1
2640CPX #4
2650BEQ O1
2660CPX #13
2670BNE D
2680LDA #226
2690CPY #12
2700BEQ  O1
2710CPY #3
2720BEQ O1
2730JMP O2
2740.D CPY #3
2750BEQ O1
2760CPY #12
2770BNE O3
2780CPX #13
2790BEQ O1
2800LDA #225
2810JMP O2
2820.O3 LDX FLAG
2830CPX #1
2840BNE O2
2850LDA #228
2860JMP O2
2870.O1 LDA #32
2880.O2 JSR &FFEE
2890JSR SWAP
2900RTS
2910.AT LDA #31
2920JSR &FFEE
2930TYA
2940JSR &FFEE
2950TXA
2960JSR &FFEE
2970RTS
2980.UP LDX X1
```



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SABRE WULF

Coat of many colours

S Rodgers *demonstrates a multi colour sprite generator program*

Multisprite is a multicolour sprite generator for the Commodore 64

To achieve rapid colour changes, I have used extended background mode — a little used facet of the 64

The program can develop up to 64 sprites and the data for all of these is incorporated into user programs using a novel method, without recourse to merge programs or pencil and paper

Program Notes

0	Go to start of program
1-6	Routine to generate data statements for any number of sprites
100-160	Copywrite message
210	Line—0 Column 0 V VIC chip
220	Cursor array: Set cursor to asterisk
230	Elements array: N.B EL$(0) are SHIFTED SPACES
310	Location 2 is normally unused
410	Opening screen. Set up screen
1010	Memorise character under cursor
1020	SM — Screen memory. Toggle F flag
1030	Poke screen with either * or memorised character
1040	Get from keybd.
1050-1080	Move cursor
1090	Odd numbered Function keys
1100	Even numbered
1110	Home cursor
1120	Next sprite (cntrl 'N')
1130	End Program (cntrl 'E')
1140	Re-loop
3010	Move printing to relevant position
3020	Print relevant element
3030-3040	Calculate current byte and bit pair
3050	Switch-off first bit in bit pair
3060	If new bit pair is 10 or 11 then switch on again
3070	Switch-off second bit
3080	If new bit pair is 01 or 11 switch on again
4010	Determine which set of registers
4020-4030	Change background #1 and sprite-multi #1
4100-4110	Change background #2 and sprite colours
4200-4210	Change background #3 and sprite-multi #0
4300-4310	Change background and border colours
5010-5020	Transfer data to relevant block above 49152
5030	Update sprite counter
10010	Background, border to red: printing to yellow
10020-10090	Print details
10100	Wait for keyboard
20010	Title of page
20020	Read in example sprite
20030-20150	Print magnified example and details
	N.B.
20030	Shifted spaces normal spaces
20040	Shifted. Shifted. Normal. Normal.
20060	Copy 20030
20070	Shifted
20080	Shifted Shifted
20090	Copy 20070
20110	Shifted
20120	Normal
20130	Shifted
20160	Switch on multicolour select colours
20170	Expand #1 and #3 in Y direction, #2 and #3 in X.
20180-20210	Set all 4 sprites to yellow. Pointers to block 13. Arrange sprites vertically to left of screen
30010	Restore standard colours, switch off sprites and ext. bckgrnd.
30020-30140	Print instructions to use data generator
30150	Wait keyboard
30160	Clear screen, list lines (end)
60010-60080	Data for initial sprite

```
0 GOTO200
1 INPUT"LINE NUMBER",LI AD=49152
2 IFAD=49152+PEEK(2)*64THENEND
3 PRINT"J", FORI=0TO7 PRINTLI+1010 0", FORJ=0TO7
4 PRINTSTR$(PEEK(AD+100+J))",",
5 NEXT PRINT"■ ■" NEXT PRINT"LI="LI+100" AD="AD+64 GT2
POKE631,19 POKE198,10
6 FORI=0TO8 POKE632+I,13 NEXT END
9
100 REM*************************************
110 REM                                    *
120 REM  MULTICOLOUR SPRITE GENERATOR      *
130 REM                                    *
140 REM     (C) 1984   S.P.RODGERS         *
150 REM                                    *
160 REM*************************************
199
200 REM-----------------------------------
201 REM>>>          VARIABLES          <<<
202 REM-----------------------------------
210 LI=0 CM=0 V=53248
220 DIMCU(1) CU(0)=42
230 DIMEL$(3) EL$(0)="  ■■" EL$(1)="■  ■■" EL$(2)="■
■■" EL$(3)=",.■■"
299
300 REM-----------------------------------
301 REM>>>    SET SPRITE COUNTER       <<<
302 REM-----------------------------------
310 POKE2,0
399
400 REM-----------------------------------
401 REM>>>       START PROGRAM         <<<
402 REM-----------------------------------
410 GOSUB10010 GOSUB20010
499
999
1000 REM----------------------------------
1001 REM>>>         MAIN LOOP          <<<
1002 REM----------------------------------
1010 CU(1)=PEEK(1111+LI*40+CM)
1020 SM=1111+LI*40+CM F=F+1 IFF>1THENF=0
1030 POKESM,CU(F)
1040 GETR$
1050 IFR$="■"ANDLI<20THENPOKESM,CU(1) LI=LI+1 GOTO1010
1060 IFR$="■"ANDLI>0THENPOKESM,CU(1) LI=LI-1 GOTO1010
1070 IFR$="■"ANDCM<21THENPOKESM CU(1) CM=CM+2 GOTO1010
1080 IFR$="■"ANDCM>1THENPOKESM CU(1) CM=CM-2 GOTO1010
1090 IFR$>="■"ANDR$<="■"THENGOSUB3010 GOTO1010
1100 IFR$>="■"ANDR$<="■"THENGOSUB4010
1110 IFR$="■"THENPOKESM CU(1) LI=0 CM=0 GOTO1010
1120 IFR$="■"THENGOSUB5010 GOSUB20010 GOTO1010
1130 IFR$="■"THENGOSUB5010 GOTO30010
1140 GOTO1020
1999
3000 REM----------------------------------
3001 REM>>>      PRINT ELEMENT         <<<
3002 REM----------------------------------
3010 PRINT"■" FORI=-1TOLI PRINT"■", NEXT FORI=-6TOCM PRINT
"■", NEXT
3020 PRINTEL$(ASC(R$)-133)
3030 BY=832+(LI*3)+INT(CM/8)
3040 BP=3-(CM-(INT(CM/8)*8))/2
3050 POKEBY,PEEK(BY)AND(255-2↑(2*BP+1))
3060 IFR$="■"ORR$="■"THENPOKEBY,PEEK(BY)OR(2↑(2*BP+1))
3070 POKEBY,PEEK(BY)AND(255-2↑(2*BP))
3080 IFR$="■"ORR$="■"THENPOKEBY,PEEK(BY)OR(2↑(2*BP))
3090 RETURN
3999
4000 REM----------------------------------
4001 REM>>>     CHANGE COLOURS         <<<
4002 REM----------------------------------
4010 R=ASC(R$)-137 ONRGOTO4100 4200 4300
4020 X=PEEK(V+34)AND15 X=X+1 IFX>15THENX=0
4030 POKEV+34,X POKEV+38,X RETURN
4100 X=PEEK(V+35)AND15 X=X+1 IFX>15THENX=0
4110 POKEV+35,X FORI=0TO3 POKEV+39+I,X NEXT RETURN
4200 X=PEEK(V+36)AND15 X=X+1 IFX>15THENX=0
4210 POKEV+36,X POKEV+37,X RETURN
4300 X=PEEK(V+32)AND15 X=X+1 IFX>15THENX=0
4310 POKEV+32,X POKEV+33 X RETURN
4999
5000 REM----------------------------------
5001 REM>>>     TRANSFER DATA          <<<
5002 REM----------------------------------
5010 AD=49152+64*PEEK(2)
5020 FORI=0TO62 POKEAD+I PEEK(832+I) NEXT
5030 POKE2,PEEK(2)+1
5040 RETURN
5999
10000 REM---------------------------------
10001 REM>>>     OPENING SCREEN        <<<
10002 REM---------------------------------
10010 POKEV+32,2 POKEV+33,2 POKE646,7
10020 PRINT"■■■■MULTICOLOUR SPRITE GENERATOR■"
10030 PRINT"■■USE KEYS AS FOLLOWS "
10040 PRINT"■■       USE THE CURSOR KEYS AS NORMAL"
10050 PRINT"■■       F1-F3-F5-F7 TO BUILD SPRITE"
10060 PRINT"■■       F2-F4-F6-F8 TO CHANGE COLOURS"
10070 PRINT"■■       CONTROL N  FOR NEW SPRITE"
10080 PRINT"■■       CONTROL E  TO END PROGRAM"
10090 PRINTSPC(10)"■■■ANY KEY TO CONTINUE"
10100 GETR$ IFR$=""THEN10100
10110 RETURN
19999
20000 REM---------------------------------
20001 REM>>>     SET UP SCREEN         <<<
20002 REM---------------------------------
```

```
20010 PRINT"MULTICOLOUR SPRITE GENERATOR--SPRITE
"PEEK(2)"M"
20020 RESTORE FORI=0TO62 READB POKE832+I,B NEXT
20030 M$="..█         █.....█        █....." FORI=0TO1
PRINTSPC(7)M$ NEXT
20040 M$="█  █......█  █..█  █......█  █.." FORI=0TO5
PRINTSPC(7)M$ NEXT
20050 M$="..█         █.....█        █...." FORI=0TO1
PRINTSPC(7)M$ NEXT
20060 PRINTSPC(7)"......................."
20070 M$=".........        ..........  FORI=0TO1 PRINTSPC
(7)M$ NEXT
20080 M$=".......  .......  .........  FORI=0TO5 PRINTSPC
(7)M$ NEXT
20090 M$=".......          .......... " FORI=0TO1 PRINTSPC
(7)M$ NEXT PRINT"M"
20100 POKEV+17,91 POKEV+34,0 POKEV+35,7 POKEV+36,3
20110 PRINTSPC(32)"F1 =   "
20120 PRINTSPC(32)"F3 = █ "
20130 PRINTSPC(32)"F5 = █ "
20140 PRINTSPC(32)"F7 -SPACE"
20150 PRINTSPC(10)"F2 - F8  TO CHANGE COLOURS"
20160 POKEV+28,15 POKEV+37,3 POKEV+38,0
20170 POKEV+23,10 POKEV+29,12 POKEV+21,15
20180 FORI=0TO3
20190 POKEV+39+I,7:POKE2040+I,13
20200 POKEV+I*2,30 POKEV+1+I*2,60+I*40
20210 NEXT
20220 RETURN
29999
30000 REM---------------------------------
30001 REM>>>        END PROGRAM          <<<
30002 REM---------------------------------
```

```
30010 POKEV+32,14 POKEV+33,6 POKEV+21,0 POKEV+17,27
30020 PRINT"SPC(13)"END OF PROGRAM"
30030 PRINTSPC(5)"YOU HAVE PEEK(2) SPRITES IN MEMORY"
30040 PRINT" THE PROCEDURE TO INCORPORATE THE DATA"
30050 PRINT" FOR THESE SPRITES INTO YOUR PROGRAM IS"
30060 PRINT" AS FOLLOWS "
30070 PRINT"1.  TOUCH ANY KEY (WHEN READY)."
30080 PRINT"2.  WITHOUT CLEARING THE SCREEN, LOAD
YOUR PROGRAM"
30090 PRINT"3.  INCORPORATE LINES 1-6 (AS LISTED)
INTO YOUR PROGRAM."
30100 PRINT"4.  TYPE RUN , THE PROGRAM ASKS FOR A
LINE NUMBER TO START"
30110 PRINT" WRITING DATA."
30120 PRINT"N B!! CHOOSE A LINE NUMBER CAREFULLY AS
30130 PRINT"  EXISTING PROGRAM LINES MAY BE DELETED"
30140 PRINTSPC(13)"TOUCH ANY KEY"
30150 GETR$ IFR$=""THEN30150
30160 PRINT"J" LIST1-6
39999

60000 REM---------------------------------
60001 REM>>>   EXAMPLE SPRITE DATA  <<<
60002 REM---------------------------------

60010 DATA21,2,160,21,2,160,64,72
60020 DATA0,64,72,0,64,72,0,64
60030 DATA72,0,64,72,0,64,72,0
60040 DATA21,2,160,21,2,160,0,0
60050 DATA0,0,252,0,0,252,0,3
60060 DATA3,0,3,3,0,3,3,0
60070 DATA3,3,0,3,3,0,3,3
60080 DATA0,0,252,0,0,252,0,000
```

Blitz on New York

Jason Orbaum and Geoffrey Campbell begin a new short series on Dragon assembly programming

The idea in this new series is to develop a complete game program written in assembler. We decided on one where not many things happen at once, and settled on *Blitz* which is relatively easy to program, whilst still demonstrating quite a few useful routines.

For all those who have not heard of *Blitz* (both of you!), you pilot a plane that is running out of fuel, flying over New York. As you are running out of fuel, you must clear a landing space on the ground beneath by bombing the buildings and successfully land.

The first part of the *Blitz* program will be published next week, and for now we'll look at how the game was developed. A flow diagram is shown in Fig 1.

The initialisation routine comes round first after the start — divided into two boxes. They are split like this because some of them are at the beginning of each new wave and the rest, for example the score, are only reset at the beginning of each new game. The next stage is to clear the screen, and then the buildings are constructed. We will explain the workings of the various routines when the listing is published.

Next, the program checks the co-ordinates of the plane. If it is in the bottom right hand corner — the position after successfully landing — the program flow is diverted to set up a new wave. Otherwise it carries on and moves the plane across one position. A check is then made to see if the plane has crashed. If it has, then the score is presented, and the game pauses until a key is pressed. If this key is the apostrophe (shifted seven) then the program returns to Basic (or the assembler if it is being run from there). If not a new game begins.

If the plane has not crashed or landed, the program must check to see if a bomb is dropping. If so, the bomb must be moved one space down, checking to see if the bomb has hit a building or reached the ground, and taking the appropriate actions.

The keyboard is now read, using a method that will be discussed later, and if a key is depressed and there is not a bomb already dropping, a new bomb is released.

Now we come to the unusual feature for this version of the game — buildings that grow. If the wave is greater than three, and a random number is in the desired range, the buildings (provided they are not in the row beneath the plane) scroll up one position.

This explains the flow chart in broad terms, and we will look at the first of the routines in detail next week.

If you reckon you can't wait till next week for the listing, try writing part of the game using the flow diagram as the basis and see how you get on.


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Open Forum

Open Forum is for you to publish your programs and ideas. Take care that the listings you send in are all bug-free. Your documentation should start with a general description of the program and what it does and then give some detail of how the program is constructed

Shoot A Star

on Vic20

Shoot-a star is for the unexpanded Vic 20. You may have thought that controlling 4 ships in an unmentioned Vic game was hard enough, but this is it. You must have supreme control of SEVEN laser bases, with which you must save the Earth from marauding mutated Martian Elephants.

For bonus points, hit the planet(s?) of Mars itself. You control your seven ships using the number keys 1 to 7 for firing each one (1-Left to 4-middle to 7-Right). Unfortunately, when an elephant reaches Earth it chooses a random Laser base and blasts it into a bit of space-junk (making it unuseable in the process). Beware, when all laser bases have been lost, the Earth has no defences, and the planet is doomed to be trodden on.

Program notes

Lines 10-45 Set up screen
Lines 70-96 laser bases-Has 1-7 been pressed?
Lines 1030-1180 Laser base input
Lines 2000-2040 The Earth has been trodden on
Lines 3000-3070 Loop to check for basses input.

```
10 K=1000 SC=0 POKE[illegible] 105 POKE368[illegible]8,15 PRINT "[illegible]****SHOOTING STARS****" I=0 V=
0
15 IFPEEK(197)<>64THEN15
16 FORQ=1TO7 N(Q)=9 NEXT
20 B$(1)= [illegible] PRINT "[illegible]PRESS [illegible]PACE[illegible] TO START." E=30720
25 PRINT "[illegible]PRESS [illegible]RETURN[illegible] TO END."
30 GETA$ IFA$[illegible]ANDA$[illegible]THEN30
31 IFA$=[illegible]THENPOKE36879,27 PRINT "[illegible]" END
32 IFPEEK(197)<>64THEN32
33 TI$="000000" PRINT "[illegible]" B$[illegible]= "[illegible]"
35 PRINT "[illegible]", FORQ=1TO[illegible] PRINTB$([illegible]) NEXT
36 FORQ=0TO6 IF[illegible]THENPOKE[illegible]3+Q*3,0 POKE38[illegible]1+Q*3,0
37 NEXT
40 PRINT "[illegible]SCORE [illegible]"SC"HSCORE"HS"[illegible] T=VAL(RIGHT$(TI$,3)) POKE36977,[illegible]
41 IFSC>HSTHENHS=SC
45 PRINT "FUEL [illegible] TIME [illegible]"T
46 IF[illegible]=0THENPRINT "[illegible]FUEL [illegible]" GOTO[illegible]
47 IFT>=200THENPRINT "[illegible]FUEL [illegible] OUT TIME [illegible]"T GOTO2000
49 IFI=1THEN55
50 [illegible]INT(10*RND(1)+1) IFG=5THENPOKEA,32 A=INT(350*RND(1)+7[illegible]) POKEA,42 POKEA+E
1
51 IFINT(20*RND(1)+1)=10[illegible]THENX=INT(22*RND(1)+1) I=1 A=7724+X DI=0 POKEA,32
52 IFI=0THEN60
55 DI=INT(3*RND(1)+2[illegible]) POKEX,32 IF[illegible]+DI[illegible]THEN1000
56 [illegible]+DI POKE[illegible],94 POKEX+E,7
60 F=PEEK([illegible]) W=255
70 IFF=0ANDN(1)=9THENFORQ=8077TO7705STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO3
000
75 IFF=56ANDN([illegible])=9THENFORQ=8080TO7708STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO
3010
80 IFF=1ANDN(3)=9THENFORQ=8083TO7711STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO3
020
85 IFF=57ANDN(4)=9THENFORQ=8086TO7714STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO
3030
90 IFF=2ANDN(5)=9THENFORQ=8069TO7717STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO3
040
93 IFF=58ANDN(6)=9THENFORQ=8092TO7720STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO
3050
96 IFF=3ANDN(7)=9THENFORQ=8095TO7723STEP-22 POKEQ,30 POKEQ+22,32 POKEQ+E,5 GOTO3
060
100 GOTO40
1000 POKE36877,W W=W-7 IFPEEK(Q-22)=42THENSC=SC+10 X=1 GOSUB2030 RETURN
1010 IFPEEK(Q-22)=94THENSC=SC+20 X=1 I=0 GOSUB2030 RETURN
1020 RETURN
1030 IFX=1THENPOKEQ-22,32 POKEQ,32 X=0 Q=7705
1040 NEXT POKE7725,32 POKE8099,93 POKE38819,5 GOTO3070
1050 IFX=1THENPOKEQ-22,32 POKEQ,32 X=0 Q=7708
1060 NEXT POKE7728,32 POKE8102,93 POKE38822,5 GOTO3070
1070 IFX=1THENPOKEQ-22,32 POKEQ,32 X=0 Q=7711
1080 NEXT POKE7731,32 POKE8105,93 POKE38825,5 GOTO3070
1090 IFX=1THENPOKEQ-22,32 POKEQ,32 X=0 Q=7714
1100 NEXT POKE7734,32 POKE8108,93 POKE38828,5 GOTO3070
1110 IFX=1THENPOKEQ-22,32 POKEQ,32 X=0 Q=7717
1120 NEXT POKE7737,32 POKE8111,93 POKE38831,5 GOTO3070
```

```
1130 IFX=1THENPOKEU-22 32 POKEU,32 X=0 ...
1140 NEXT POKE7740.32 POKE8114,93 POKE ... ,0
1150 IFX=1THENPOKEU-22 32 POKEU 32 ...
1160 NEXT POKE7743,32 POKE8117,93 POKE ... ,0
1800 T$=TI$ FORZ=1TO7 READP POKE36875 ... NEXT NEXT POKE36875.0 RESTO
RE
1801 DATA195,207 215,225,215,207,195
1805 V=V+1 IFV=7THEN2000
1810 U=INT(7*RND(1)+1) IFN(U ...THEN1810
1850 N(U)=U I=0 TI$=T$ GOTO5
2000 POKE36879,46 PRINT ... AME OVER ... PRINT' ... PRE ... F1 ... TO START
.'
2005 FORS=128TO255 POKE36874,S NEXT POKE36874,0
2006 IFPEEK(197) 64THEN2006
2010 GETA$ IFA$C' THEN2010
2020 GOTO10
2030 POKE36876,220 FORL=15TO0STEP-1 POKE36878 L FORM=1TO... NEXTM NEXTL POKE36876
.0
2040 POKE36878 15 RETURN
3000 GOSUB1000 GOTO1030
3010 GOSUB1000 GOTO1050
3020 GOSUB1000 GOTO1070
3030 GOSUB1000 GOTO1090
3040 GOSUB1000 GOTO1110
3050 GOSUB1000 GOTO1130
3060 GOSUB1000 GOTO1150
3070 K=K-20 GOTO40
```

Shoot A Star
by M Valentine

Screen

on Dragon

How many times have you seen the output you need disappear off the top of the screen? Here is a set of simple *Basic* subroutines which will memorise the screen for you and banish such problems forever

To incorporate the routine in your program, set N as the number of lines to be copied and if necessary reset M, the start of the memory to be used, then *Gosub* 360 Copy as few lines as possible at each stage, since the program is fairly slow, then clear the screen. On recall, using *Gosub* 480, the complete set of recorded lines will be reproduced page by page, in an interesting highlighted fashion. The speed-up *Poke* 65495 O may be added if it is compatible with your machine.

Program notes

100-140	Demonstration screen.
180	Initialise variables.
220-270	Select memorise or recall.
310-340	Inputnumber of lines
360	Store line total.
380-440	Memorise
480-530	Recall first page.
530-560	Next page routine.

```
10 ******************
20 '* RECORD  SCREEN *
30 '*   AND RECALL   *
40 '*    (C) 1984    *
50 '*  BRIAN HATTON  *
60 '*****************
70 ***************
80 '*DEMONSTRATION*
90 '***************
100 CLS
110 PRINT@43,"DATA RECAL
L"
120 PRINT@75,"**********
*"
130 PRINT@96,"THIS PROGR
AM SHOWS HOW OUTPUT TOTH
E SCREEN CAN BE MEMORISE
D AND RECALLED "
140 PRINT@192,"IT CAN BE
 ADDED TO AN EXISTING  P
ROGRAM AS SUBROUTINES "
150 '***************
160 '*SET VARIABLES*
170 '***************
180 S=0 T=0 M=19999
190 '***********
200  *SELECTION*
210  ***********
220 PRINT@448,"        PR
ESS M TO MEMORISE"
230 PRINT@480,"
ON R TO RECALL",
240 I$=INKEY$$ IF I$=""
THEN 240
250 IF I$= M" THEN GOSUB
 290
260 IF I$="R" THEN GOSUB
 460
270 GOTO 200
280  **********
290  *MEMORISE*
300  **********
310 PRINT@480,"
                  ",
320 PRINT@448," HOW MANY
 LINES TO MEMORISE",
330 INPUT N
340 IF N<0 THEN RUN
350 T=T+N
360 PRINT@448,"
 PLEASE WAIT"
370 FOR I=1 TO 32*N
380 IF I>448 THEN T=T-N+
14 RETURN
390 P=PEEK(1023+I)
400 IF P<64 THEN P=P+96
GOTO420
410 IF P>95 THEN P=P-64
420 POKE (M+32*(T-N)+I),
P
430 NEXT
440 RETURN
450  ********
460 '*RECALL*
470  ********
480 FOR I= 1 TO 448
490 IF I+448*S>32*T THEN
 PRINT@480,"
                  ", PRINT@44
8,"       ANY KEY TO RES
TART ", EXEC 41134 RUN
500 P=PEEK(M+I+448*S)
510 POKE(1023+I),P
520 NEXT
530 PRINT@480,"
540 PRINT@448,"     ANY
KEY FOR NEXT PAGE", EXEC
 41134 550 CLS S=S+1
560 GOTO 480
```

Screen
by Brian Hatton

Open Forum

Origami

on BBC

This simple graphical program produces random black and white patterns similar in appearance to origami models. The whole program is random so to acieve the results you want just keep re-running the program by pressing escape.

If you like a pattern then press any key and it will stop until you press a key again.

```
10ON ERROR RUN
20K=RND(-TIME)
30V=RND(500)
40MODE4
50GCOL4,1
60VDU29,640;512;
70MOVE0,0:MOVE1,1
80REPEAT
90X=RND(V)-(V/2)
100Y=RND(V)-(V/2)
110XC=XC+X
120YC=YC+Y
130IFXC>640 THENXC=640
140IFXC<-640THENXC=-640
150IFYC>512THENYC=512
160IFYC<-512THENYC=-512
170PLOT85,XC,YC
180A=INKEY(0):IFA<>-1THENA=GET
190UNTILFALSE
```

Origami
by P Venables

Arcade Avenue

Dragon review

Following recent hiccups in the fortunes of the Dragon some machines can be picked up for as little as £60 Such bargain prices will mean that a lot of new Dragon owners will be interested in what games are worth buying As with all home micros, the quality of software has been increasing, but there is only time for a quick review of some of the best here As with the Spectrum and Vic, apparent hardware limitations are overcome or made unimportant by good programming and games design. Thankfully, we are also starting to get away from the all pervading green backgrounds that made reviewing Dragon games such a headache.

I get a huge amount of mail about *A&F's Chuckie Egg* and one day soon I will devote a whole avenue to the various high scores and dips This ladder-climbing, hole-jumping game has smooth graphics and a good keyboard response which makes it very playable Available on a range of micros, it should not be missed. I can guarantee its lasting appeal.

Hungry Horace, an old Spectrum chestnut from Melbourne House, is a *Pac-man* derivative that continues to reappear on other machines. It's worth a look, as is *Mined Out* by Quicksilva another old and simple Spectrum game that keeps some lasting appeal due to the need for a degree of logical thought and strategy

Arcadia and *Leggit* are two evergreen Imagine releases, the first a straightforward zap game that despite graphics and sound that are less than amazing these days somehow has a lasting charm. *Leggit*, which is *Jumping Jack* on the Spectrum, is a furious and maddeningly addictive game where you frantically run around several platforms, trying to jump up through moving holes to reach the top of the screen.

Ocean's *Hunchback* appears to be their only game available for the Dragon but this is the peak of the arcade game copier's art and contains all the screens of the original game with high quality graphics

Hewson Consultants' three games in the Seiddab series, *3D Space Wars, 3D Seiddab Attack* and *3D Lunattack*, are available for the Dragon as well as the Spectrum. These games are very clever but get a mixed reaction from people who play them. Personally I think they are very good, but you may be advised to see them for yourself before buying

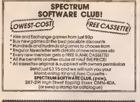
Ugh! by Softek is a very colourful and fun game set in prehistoric times with cavemen and various dinosaurs to avoid. It has proved so popular that it is actually being converted to other machines such as the cbm 64 (an amazing step up for a Dragon original).

Slightly out of my field but well worth mentioning is a war strategy game from Beyond called *Kriegspeil* that is supposed to be very good. For further information on this as well as adventures for the Dragon, I suggest you read *Micro Adventurer*

Finally, but possibly most importantly, is Microdeal of St Austell (who I think also produce Tom Mix software) They have so many good games that I cannot begin to mention them all They are perhaps best known for their Cuthbert games, most of which are well worth buying, but look out as well for their arcade copies of *Frogger, Skramble, The King* (a very good *Donkey Kong*) and *Eightball (Video Pool)* *Danger Ranger* should be good because it is also being released for the Atari and the Commodore Because it is supposed to be one of the best Dragon games available, *Buzzard Bait*, new from Tom Mix, was chosen to be the first game with the 'dongle' anti-pirating device Unfortunately, we could not get it to load. However, *Touchstone*, another very recent release is, I hear, extremely good. Check it out.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games If you have any comments from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle Arcade Avenue *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD



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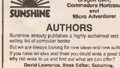
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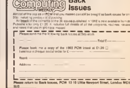
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Tony Bridge's Adventure Corner



Game savers

The Quill has a lot to answer for – now it is no longer the horrendous job of coding that will put budding authors off writing their magnum opus, merely lack of imagination! But the first of the Adventures that we look at this week is not Quill'd.

Treasure of Meathos is written and marketed by J. Copland. 'The volcano of Meathis contains the tomb of the long-dead King of Natocriaq and his Queen . . .' There is a monster, created by the evil Wizard, which is roaming around the complex where you start the Adventure. You are not alone — a constant friend is Boris Blackridge, who appears whenever you ask for Help, and will suggest a course of action (if you're lucky!)

I'm afraid that I have lost Mr Copland's address, but please write to me, and I will publish the information. Now to the Quill'd Adventure for this week! *It's a Myth-tery* is from Mythsoft, and the author is A J Roberts. Like all Mythsoft programs, this present adventure is offered at the very reasonable price of £3.00. At the start, the player is presented with a book – that's all, and it is up to him to find out the purpose and aims of the Adventure. As Mythsoft say, when reading a book, the reader would know nothing of what was to come. I can reveal, however, that the overall object is to free the Gods and Goddesses who are being held captive by The Mythologist.

There are only one or two of the obligatory spelling gaffes, but these are redeemed by the touches of humour throughout the program. Whilst all the usual commands are recognised (and there's a new one that is usually only seen in games of much higher pedigree from the likes of Infocom, type *Exam Chrono*, and the game time is given), it's a pity that there is no Save Game facility. All in all, *It's a Myth-tery* is very capable adventure, and an excellent program with which to open a new catalogue. Their address is Mythsoft, 84 Elland Road, Brighouse, West Yorks HD6 2QR.

Classic Computing is another new name, and has just released their new adventure *The Curse of the Seven Faces* – I thought, at first, that its scenario might pay homage somehow, to the old Agatha Christie novel, *The Seven Dials*, but no, it is the familiar plot concerning Dragons, Elf-Kings, Wizards and so on.

Classic have obviously thought hard about the appearance of their program, and the screen is very colourful, with cyan text on a black background, although the magenta used for input is rather difficult.

The descriptions of the various locations are very colourful, too, with, for instance, 'hideous faces', which 'appear and cackle loudly, before fading away before you.' Returning to many locations, but not all, means that an abbreviated description is returned, but the full text can be viewed again by typing *Look*.

Some 180 rooms or locations are included, and range from very small rooms, with not enough space to swing a cat (although I would advise trying it!), to mazes of rainbow-coloured rooms (only one of several mazes!) and Forests, Castles and Caverns. All the usual cliches are met but dealt with in an ironic and, sometimes, mordant way.

The adventure plays very well with sticky, but entirely logical problems which will succumb to hard, lateral thought.

But the feature that I like most, and is, as far as I know, absolutely unique, is the Game Save facility. Yes, I know most adventures include this but the one in Curse is rather different.

But how many times have you had to fiddle with the controls on the tape machine, prior to stepping into 'A Dark Cave from issues a low, animal growl'? How many times have you then been subsequently killed, only to find that you connected the leads in the wrong way and have to start all over again? If you're like me (impatient to get on with things!) you will know how infuriating this can be! Classic must have trodden this same path, because they have included, in *The Curse of the Seven Faces*, the option to *Save* a game, as normal to tape, or, and this is the interesting bit, to a 'buffer'. This means that you can simply select '2' from the *Save Game* menu, and your present position goes into memory only, thus freeing you from fiddling about with tapes and the various controls.

Alan McDonald and Peter Galbavy (along with able proof-reader Zoe Meeson) are to be congratulated for producing an extremely well-crafted Adventure. I recommend it very highly. Classic Computing, 21 Harewood Avenue, London NW1.

Fergus McNeill of Delta 4 Software has written a suite of three Adventures, using The Quill. Going under the overall title of *The Dragonstar Trilogy*, this tape seems very good value at just £4.95. It's the usual tale of Princesses, which have to be rescued and Dragons, which have to be fought. The locations in the first part are easily mapped, and there are at least two or three dozen of them, taking the player on a guided tour of a range of snowy mountains, damp caves, a large forest and a giant plain.

The second program seems to contain rather more to do. Going on to the other parts of the Trilogy seems to be easy, with no code words being required, but I am sure that various objects and knowledge will be required from the previous part in order to properly play the following parts. As I said before, good value, and a good romp for old D & D'ers. Delta 4 Software, The Shieling, New Road, Swanmore, Hants.

The Devil to Pay is an Adventure by M J Balchin of Computascope for Fun. A nicely-drawn cassette inlay card is not backed up by the cheap type-written set of instructions. You have been chosen to enter The Tower and retrieve the golden Apple (whatever that is) – 'Many have Gone Before, but none have returned. Can you?'

Well I can't, at least, not without some sort of crib sheet! The descriptions of each location are quite atmospheric, which is always a good thing, but the program is badly let down by the terrible layout and even worse spelling.

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair — help is at hand.

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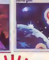
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Peek & Poke



US currency

S M Walker of Newcastle-upon-Tyne writes.

Q **I occasionally buy an American computer magazine and read all of the advertisements for the Vic20. I would like to know how to apply for this equipment, as obviously, the currencies are different.**

A You can arrange to send US currency via your own bank This is probably the most convenient method of ordering goods from the USA (or indeed any other country)

Vic20 modulator

Phil Whalley of Stanford-le-Hope Essex writes:

Q **I have just had to change my Vic20's modulator for the first time because it was faulty. I know of other people on their third or fourth. I wonder if there is a different more reliable make of modulator on the market that could fit to the Vic which would last longer If you know of any, it would put me and many other Vic owners out of our 'silver box' misery.**

A Nothing would please me more than to be able to say that I know of a reliable alternative modulator for the Vic. Unfortunately I don't. It is an interesting fact that each of the popular home micros has its achilles heel. With the Vic it is the 'silver box' With the Spectrum it is the keyboard. I am afraid that we have to accept that components will fail from time to time, and just hope it doesn't happen too often.

Frequency value

Richard Hyde of Bourne End, Bucks writes.

Q **Do you know any formulae I can use to calculate the frequency and duration of a note needed for the Rom routine at 3B5H on the Spectrum, ie, given *Beep* 0.5,1 how can I work out the required frequency and duration values?**

Secondly, how can I use the message routine at OCOAH.

A Probably the best formula I can give you is that used by the routine at 03F8H (the *Beep* command routine) This routine merely requires the pitch and duration of the note required to be put on the calculator stack, (pitch on top) This routine saves you having to worry about formulae and complex frequency conversions. I guess that what you want to do is use the ROM routines to produce textual screen displays in that case I suggest that you set up the message to be printed, store an address of it in the A register, and call the routine at OC3BH (PO-*Save*), once for each character to be printed (incrementing the A register each time)

Scanning routine

Scott Lang of Kircaldy Fife writes

Q **I have a 48K Spectrum and I am writing a game which uses the *In* function My problem is when keys Q to T are held down this makes *In* 64510 take a value of 224 However, pressing any other key on the keyboard at the same time still gives the key the value 224.**

For example: keys Q to T are pressed. *In* 64510 – 224. Key C is also pressed: *In* 65278 – 247.

Is this a fault on my Spectrum?

A Your problem is associated with the way that the keyboard scanning routines operate If more than three keys are being held down at the same time it is possible for the effect you describe to occur I managed to reproduce this effect twice in about fifty attempts The other 48 times everything was OK.

You should try and avoid having to use more than three keys at any time in your program. To get round the problem you should keep the keys to be used well apart, ie, in different 'half rows' That should at least ensure that you will be able to determine if any key in that half row has been pressed.

American voltage

Gregg Whitbread of Chadwell-St Mary, Grays, Essex writes.

Q **I am a proud owner of a Commodore 64. I am shortly going to America and I wondered if you could give me some advice? I would like to purchase some software, a 1541 disc drive and a modem while I am over there Will any of these work on my faithful 64?**

A I would think that software would not be a problem on CBM64 It is certainly possible to use UK software tapes on US machines and I see no reason why the reverse should not apply

As far as the disc drive is concerned, you will run into electrical problems here The USA uses a different standard for electrical equipment from the UK. The same applies if you purchased a modem in the USA.

You could get round the problem by using a voltage transformer (to produce the electrical current required by the US hardware) but by the time you have done that it probably won't have saved you any money.

Digital electronics

Steven Cox of Formby, Merseyside writes

Q **By mistake this week, my dad bought me a copy of *Sinclair Projects*, the hardware magazine. Even though what was explained inside was a little (a lot) beyond me, Digital Electronics really caught my imagination. Could you tell me of any simple books which you know of on this subject?**

A There are quite a lot of introductory books — with at least half a dozen in the *Teach Yourself* series Without going into too much detail any one would be a pretty good first step into this field One other thing you could consider if you are a Spectrum owner interested in finding out how your micro works would be the *Spectrum Hardware Manual*, published by Melbourne House It is a very useful book.

On the market

S G Ruffell of Ogmore-by-Sea, Mid Glamorgan writes

Q **Could you tell me the best light pen on the market for around £20 to £30 for my 48K Spectrum?**

A I am not going to risk my neck by saying which is the best — that would only be asking for trouble But DK'Tronics make a quite nice light pen which retails at about £20 You can contact DK'Tronics at Unit 6 Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AQ

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Road SW6

SHARP PC 1500 £90 ono for sale or exchange Consider Atari Vic or Sinclair Also keyboard + PSM £90 00 ono Tel Preston 864590

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THE QUILL, Lunar Jet man Mister Wimpey Will sell or swap for Adventure games Tel Huddersfield 46932 David Blackshaw

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48K ORIC I all leads inc Oric compute book £90 Tel 01-845 5618 Northolt

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S/W FOR SHARP MZ 80K-A. Adventure games + Arcade games between £3-4 Tel 01-455 8841 after 4pm

ZX MICRODRIVE, interface 1 RS232 lead & 1 blank cartridge £128 secondhand Spectrum software for sale also wanted BEEBA Spectrum software Reasonable prices paid. Tel Jon Towcester 51202 (between 8 and 9)

Wanted

WANTED for V.I.C. 20 — Practicalc Newtonhead Mid Madness, CBM Home finance Uxbridge 70324

WANTED Tale Type — £50 Tel John Chapman 8 Weir Road Rochdale. Tel Rochdale 524228

SWAP 48K Spectrum Kempston Joystick + Interface plenty of books + s/w for anything Tel Birmingham 524 1254

FOR SWAP ZX printer for ZX81 No s/w required Tel Northwood 26748

SWAP Spectrum for CBM 64 Tel Dartford 33370

VIC 1525 Printer for £175 ono or swap for colour monitor Call Mr Shaleeh — 01 735 6456

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ANYBODY interested in swapping your BBC-B (S/W if possible) for my 48K Spectrum with joystick S/W magazines and my Atari VCS with six cartridges If so contact Somerby 419 (Leics)

WANTED computer equipment, printers disks, monitors etc, especially Commodore. Everything considered Also large number of ZX81 programs and books worth over £70 asking only £36 tel Ruthin 4076 after 5pm

SPECTRUM software wanted arcade adventure and Utility no copies please Send lists and prices wanted Plus an SAE to Richard Smith 14 Hanson road March, Cambs PE15 9QA

WANTED Memotech RS232 interface for ZX81 Must have operating instructions. Telephone Hartlepool 68643 after 5pm and ask for David

ZX printer wanted — swap for chess intruders, missile planetoids h/hdiace, androids cruising jackpot derbyday I tower meteors 30-tanx softalkk 2, and sorcerers castle or sell £3 00 each ring Rochdale 50246 after 6pm

WANTED Dragon disc drive interface Tel Leicester 886063

WANTED switchable 16K/8K/3K ram pack for Vic 20 will pay £30 tel Hartlepool 870685 after 6pm

WANTED ZX80 £10 00 or less tel 663092 (Sneirness)

WANTED original quill plus instructions (yours) swap Atic Atac, penetrator Heathrow (Inste originals) 48 less than 1 year old please write to Damien Murphy 13 Glenbrook Park, Delgany Co Wicklow, Ireland

WANTED Acorn Atom (working) no software necessary as long as it works! pay up to £45 and I pay postage Sunderland (0783) 283550 or write 81 Killingworth Drive, High Barnes, Sunderland

URGENT swap or sale! Atari and four cartridges defender Asteroids Circus and Combat £55 ono or swap for any computer (not ZX81) also train set Layout for sale £36 ono phone Plymouth 334415

SWAP krazy kong, skramble chequered flag jetpac panic amok catcha-snatcha all originals. Andrew Tate 85 Argyle Way Dunblane Perthshire FK15 9DY

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WANTED the Quill — original copy will pay £7.50 or swop for Ocean Kong Gulpman Ship of Doom and Space Raiders (all originals) phone Peter on 01-422 7583 evenings (48K Spectrum)

WANTED CBM64 software utilities mainly Also want Vectrex cartridges pay £5 each No rubbish please London area. Phone 840 3610 after 6pm week days/any time on weekends

SWAP electron software Phone Harpenden (05827) 5232. After 5pm Ask for Ian

WANTED interface 1 and micro-drive for a new Atari 2600 VCS with Pac-man cartridge all boxed (as new) tel (0733) 237683 after 4 pm

SWAP Dragon 32 manuals Ring of Darkness and Dragonfly II games For Spectrum 48K or Oric 1 48K. Write Paul 4 Ridgway Road Luton Beds LU2 7RR or tel 0582 421534 anytime

SWAP Rainbow writer + Dynafast for Dragon O S or will buy Tel 0783 817351 after 6pm

SPECTRUM 48K swap software must include Valhalla, Pman e Hungry Horace Alcemist Armageddon Blade Alley Phone (0721) 21488 after 6pm

SWAP 48K Spectrum 100 games tape recorder for CBM 64 No C2N cassette unit needed No s/w Tel Maidstone 673659 Jason

WANTED for Atari 400 Basic cartridges + manuals. Also will swap ET VCS cartridge for any Atari 400 games cartridge Tel Castle Town (Caithness) 681

DRAGON SOFTWARE, books sale or swap W H Y wanted printer for Dragon Reasonable price Postal only M Bolshaw 48 Ridge Park Drive Halesowen West Midlands B63 2UZ

48K SPECTRUM in immaculate condition with software books Pay £135 cash maximum Will collect in London area. John Weller 48 Haylett Gardens, Surbiton Crescent Kingston Surrey KT1 2ER Urgent.

SWAP VIC 20. The Count for Voodoo Castle Bodmin 5098

AQUARIUS 16K Expander around £15 or near offer 3 The Crescent Market Harborough Leics Tel (0858) 66321

SPECTRUM LIGHT PEN with software Willing to swap Binatone TV game with adaptor and reasonable cash sum Phone West Kilbride 822074 after 4pm Ask for Allen

SWAP PUCK MONSTERS and Race and Chase electronic games for any suitable computer Ring Rickmansworth 720879 Michael

ADVENTURE HELPLINE

The Golden Apple on Spectrum How do I find and get the 13th and 12th objects? Nigel King Haven Cottage Woodlands Gerrards Cross Bucks SL9 8DD

Perseus and Andromeda on Commodore 64 How do I get the Golden Helmet from the statue? David Appelbee, 73 Highmore Street Westfields Hereford HR4 9PG

The Count on Vic 20 What do you do when you get into the tomb and how do you keep the stake after Drac's first bite? Jayme Carne 35 Toltull Road Alverton Est Penzance Cornwall TR18 4QA

Dennis Through the Drinking Glass on Spectrum How do I help Dennis to escape from the bathroom? Also any other advice on getting a drink and escaping Maggie!! Robert F McOmbie 7 The Rowlands South Benfleet Essex SS7 1HF (03745) 4144

Twin Kingdom Valley on Commodore 64 How can I take the staff of gold from the witch in the Desert King's Castle? David Appelbee 73 Highmore Street, Westfields Hereford HR4 9PG

Diary

Electron and BBC Micro User Show	Alexandra Palace London	July 19-21 10 00am-6 00pm July 22 10 00am-4.00pm	£3 00 adults £2 00 children	Database Publications 68 Chester Road Hazel Grove Stockport 061-456 8383
Sinclair Computer Users Exhibition	Essex Exhibition Centre Moulsham Street Chelmsford Essex	July 21 10 00am-6 00pm	50p adults 30p children	Essex Exhibition Centre Moulsham Street Chelmsford 0245 25900
Scottish Personal Computer World Show	Assembly Halls George Street Edinburgh	July 26-27 9 30am-6 00pm July 28 9.30am-5 00pm	£1 50 adults £1 00 children	Scottish Industrial and Trade Exhibitions 44 Charlotte Square Edinburgh EH2 4DR 031 225 5486
2nd Official Acorn User Exhibition	Olympia 2 Hammersmith Road London	Aug 16 (trade day) Aug 17 19	£2.00 adults in advance £3 00 and £2 00 on door	Small Enterprises 90 Orange Street London WC2H 7ED

New Releases

CROOKED CAT

Widgit software have released two educational games for the Spectrum, *Castle of Dreams* and *Adventure Playground*. The company has a good reputation for producing educational games that actually have some thought and purpose behind them.

Adventure Playground is actually two games in one — *Crooked Adventure* and *The Queen of Hearts*. Both have large graphics and text with plenty of colour. The actual games require a variety of skills like simple logical thought and strategy. *Crooked Adventure* has the child trying to move crooked man complete with crooked cat and mouse to their crooked house. *The Queen of Hearts* sets the task of recovering stolen tarts. Clever, nice graphics and fun for kids.

Program	*Adventure Playground*
Price	*£7.95*
Micro	*Spectrum*
Supplier	*Widgit* *48 Durham Road* *London N2 9DT*

BOOTSTRAP LOADER

The first, to my knowledge, piece of independent QL software has arrived.

It's a collection of utilities supplied on a single microdrive cassette.

There is nothing very dramatic here, of course — there couldn't be really, given the amount of time the QL has been out. On the other hand some of the utilities could be quite useful.

Boot is a bootstrap loader which displays directories in columns so that screen overflow can be avoided. It will load programs with a single keypress. *Qmark* does an automatic multiformat. *Qback* makes back up copies of cartridges and *Qprune* deletes nominated files from memory.

Given the horrendous price of microdrives £10.00 is probably not an especially rip-off price for these utilities, simple though they are.

In any event, many QL owners will be desperate for some independent software.

Program	*QL Utilities*
Price	*£10*
Micro	*QL*
Supplier	*WD Software* *Hilltop* *St Mary* *Jersey* *Channel Islands*

WHITE NOISE

Micro Olympics is one of the many sport orientated games released recently. Mostly they are completely dire but this one — in its BBC form — has the virtue of having been to number three in the WH Smith chart.

The Spectrum version has now been released and it's not at all bad. Basically you have a choice between the three main areas of running, jumping or throwing. Within each of these there are quite a few choices — different distances for running, javelin or discus, hurdles or pole vaulting.

What's good about the program is the way you can choose your own keys for each section — the running sections, for example, require hammering away alternately on two keys and if your Spectrum keyboard is like mine you may not have many keys left that are up to such treatment. The graphics are reasonable but not staggering.

Less impressive, are the strange and interminable waits that crop up from time to time between stages and, on my copy at least, a couple of bugs that make the program hang up. Still, quite a lot of variety and a nice 'white noise' crowd effect if you do well.

Program	*Micro Olympics*
Price	*£5.95*
Micro	*Spectrum*
Supplier	*Database Publications* *Europa House* *68 Chester Road* *Hazel Grove* *Stockport SK7 5NY*

Pick of the week

NOT THE LOBBY!

Anirog's House of Usher has little to do with dear Edgar and a lot to do with Miner Willy — it's fair to say that the game owes a lot to Matthew Smith's eponymous program.

Nevertheless *House of Usher* is an excellent program with an opening graphics sequence that matches *Alice in Wonderland* for cartoon-like quality.

The game begins in the lobby of The House, where a leap is made into one of nine rooms each containing a different task. Tasks include collecting strawberrys, dodging cannonballs and avoiding getting squashed.

Each room is like a Miner screen requiring the familiar sense of timing and positioning of jump to be completed. The problem is you only get one chance at each room — fail and you are sent back to the lobby (Oh, no! *Not* the lobby).

If you manage to do all nine rooms then there are two more labelled *X* and *Y* which can be entered — wondering what's going on in them is quite an incentive to play again.

The graphics are entertaining and some of the fiendish thinking required to solve the rooms is well up to Miner standards. In fact, my only (very wimpish, admittedly) quibble is that even after playing for half an hour I came nowhere near doing even one of the rooms. Whether you think that this reflects on Anirog for making the game a bit difficult or me for being a pathetic player is up to you.

Program	*House of Usher*
Price	*£6.95*
Micro	*Commodore 64*
Supplier	*Anirog* *29 West Hill* *Dartford* *Kent*

SCREEN EDITING

For many people the Zeus Assembler is just about the best Assembler available for the Spectrum. Now the company that produced it, Crystal Computing, has produced *Zeus* for the Commodore 64.

What made *Zeus* the success it was was the excellence of its design — all commands are

single stroke, there is full screen editing and automatic line numbering

The program includes a Monitor with 30 commands which enable you to inspect and alter the CPU registers and memory; these include *Disassemble*, *Trace* and *Tabulate*.

There is a brief manual that gives you enough information to use the package but will not teach you machine-code. This one is not for the beginner.

Program	*Zeus 64*
Price	*£9.95*
Micro	*Commodore 64*
Supplier	*Crystal Computing, 2 Ashton Way, East Herrington, Manchester, SR3 3RX*

BAGS OF MONEY

Mogul is a company that seems to be pulling itself up the technical impressiveness ladder, ie, from the early naff games to the pretty impressive *Fire Ant*.

Now two more 'quality' games have been issued, *Zeta 7* and *Murphy*.

Murphy is a three screen maze game set in a mine. As is usual in such games you have to collect some things and dodge others but in *Murphy* it's done with much inventiveness and humour.

The unfortunate miner of the title roams through the old workings collecting bags of money and putting them in his wheelbarrow. To succeed he has to dodge a number of crooks who are also after the money (you can tell them by their stripy pullovers) and watch out for runaway carts. *Murphy* has some defence against these obstacles — he can jump up onto cross beams and jump into the cart rather than being bashed by it and he can biff the baddies with a pickaxe or drop money on them.

All this is neatly animated and is accompanied by a clever musical soundtrack. Playing the game for a while it became apparent that it's not all a matter of quick reactions — you also need quite a bit of strategy to figure out how to get some of the bags. I liked it a lot.

Program	*Murphy*
Price	*£7.95*
Micro	*Commodore 64*
Supplier	*Mogul, PO Box 4BT, 35-37 Wardour Street, London W1*

EARTHLY PARADISE

Quest for the Garden of Eden is the latest of Phoenix's two-part Arcade/Adventure format games. And it's the first to be issued in a new style — the two programs on either side of one tape rather than two tapes in a large case.

The theme this time is go-back-in-time-to-stop-Adam-from-eating-the-famous-apple-and-thereby-maintain-the-earthly-paradise (yes, but what about original sin and free will, eh — surely some theological problem here).

The first program is a running and jumping game in which you must cross from one side of a bridge to another. This involves jumping over a spider using careful timing and watching out for a fish that spits at you. Make it to the other side and you can pick up some rocks and drop them on the fish. Rough justice?

Bop enough fish and you get the running code to begin the adventure on side 2 of the program. This begins in the middle ages and using the usual adventure terminology of Verb/Noun you must try to find your way back to the famous garden and save Adam from himself.

Program	*Quest for the Garden of Eden*
Price	*£6.95*
Micro	*Commodore 64*
Supplier	*Phoenix Software, Spangles House, 116 Marsh Road, Pinner, Middlesex.*

BODY AND SOUL

Star Trader is a new program from Bug-Byte that seems to consist of every kind of games program ever designed all rolled into one. You could call it a Starventure, but it'd be better not to.

Your objective is to trade buying and selling from planet to planet in the star system trying to make money and avoid pirates who will steal your goods (at the very least). Pirate attack forms the main arcade section of the game — the screen shows the cockpit view and using shields and lasers you defend yourself from attack as best you can — there is a surrender option.

The graphics for the arcade section are very neat indeed, sprites and 3D logic making the whole thing very atmospheric. Apart from that, what you get is a fairly complex kingdom type game — you have to use planning and judgement to buy and sell goods at a profit whilst keeping body and soul together. This means eating, resting etc, at appropriate times.

There's a good deal of thought involved aside from the arcade stuff, although I'm not sure that it can really be said to be much of an adventure. For arcade and strategy, though, it's very good.

Program	*Star Trader*
Price	*£6.95*
Micro	*Spectrum*
Supplier	*Bug Byte, Mulberry House, Canning Place, Liverpool*

NUDGES AND GAMBLES

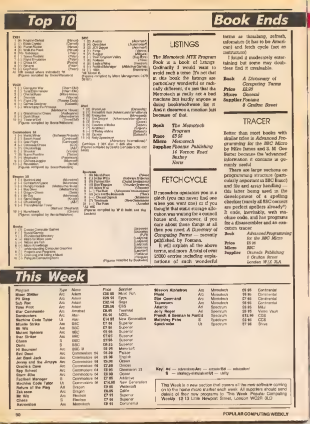
Quite honestly I've never been able to work myself up into much of a frenzy over computer simulations of fruit machines — I mean what's the point when you can't win or lose anything. Still, people keep producing them so I guess people sell them so I guess people like them.

If you want a fruit machine for the BBC then one of the best I've seen is *Superfruit* from Simonsoft. It's good partly because of its impressive hi-res graphics but mainly because it has all the 'bits and bobs' that make fruit machine gambling what it is today, ie, nudges and gambles.

These extras, plus clever sound effects make it highly playable — maybe you can get a member of your family to take your money away for you just like the real thing.

Program	*Superfruit*
Price	*£5.95*
Micro	*BBC*
Supplier	*Simonsoft, 95 Tatham Road, Abingdon, Oxon OX14 1QB*

New Releases is designed to let people know what software is coming on to the market. If you have a new game or utility which you are about to release send a copy and accompanying details to: New Releases, Popular Computing Weekly, 12-13 Little Newport Street, WC2H 3LD



Top 10

ZX81

1	(4)	Krypton Ordeal	(Novus)
2	(7)	Black Crystal	(Carnell)
3	(8)	Planet Raider	(Novus)
4	(5)	Walk the Plank	(Novus)
5	(10)	Sabotage	(Psion)
6	( )	Space Raiders	(Psion)
7	(–)	Flight Simulation	(Psion)
8	(–)	Chess 1K	(Psion)†
9	(–)	Reversi	(Psion)
10	(–)	City Patrol	(Psion)

All 16K except where indicated† 1K
(Figures compiled by Boots/Websters)

Vic20

1	( )	Computer War	(Thorn EMI)
2	( )	Tank Commander	(Thorn EMI)
3	( )	Chariot Race	(Micro Antics)
4	( )	Snooker	(Visions)
5	(–)	Flight 015	(Finesse Craig)
6	(–)	Games Designer	(Galactic)
7	(–)	Wizard and the Princess	(Melbourne House)
8	( )	Grandmaster Chess	(Audiogenic)
9	(–)	Duck Shoot	(Mastertronic)
10	(–)	Tower of Evil	(Thorn EMI)

(Figures compiled by Boots/Websters)

Commodore 64

1	(–)	Manic Miner	(Software Projects)
2	( )	Beach Head	(Centresoft)
3	(–)	Solo Flight	(Centresoft)
4	(–)	Colossus Chess	(CDS)
5	(7)	Chuckie Egg	(A&F)
6	( )	Snooker	(Visions)
7	(9)	Super Pipeline	(Taskset)
8	(–)	Megahawk	(Paramount)
9	(–)	Chinese Juggler	(Microsoft)
10	(–)	Revelation	(Softek)

(Figures compiled by Boots/Websters)

Dragon 32

1	(–)	Buzzard Bait	(Microdeal)
2	(–)	Cuthbert in Space	(Microdeal)
3	(–)	Hungry Horace	(Melbourne House)
4	(–)	Bug Diver	(Mastertronic)
5	( )	Dragon Chess	(Oasis)
6	( )	Mr Dig	(Microdeal)
7	(–)	Sorcerer's Magic	(Knight)
8	(–)	Chuckie Egg	(A&F)
9	(–)	Transylvanian Tower	(Richard Shepherd)
10	(–)	Hunchback	(Ocean)

(Figures compiled by Boots/Websters)

BBC

1	(2)	Aviator	(Acornsoft)
2	(4)	Overdrive	(Superior Software)
3	(3)	JCB Digger	(Acornsoft)
4	(1)	Frogger	(Visions)
5	(7)	Blagger	(Alligata)
6	(–)	Twin Kingdom Valley	(Bug-Byte)
7	(8)	Fortress	(Pace)
8	(9)	Eagle's Wing	(Invesion)
9	(–)	Football Manager	(Addictive Games)
10	( )	1984	(Incentive)

*All Model B.
(Figures compiled by Micro Management 0473 59181)

Atari

1	(2)	Bruce Lee	(Datasoft)‡
2	(1)	Incredible Hulk	(Adventure International)
3	(9)	Encounter	(Novagen)‡
4	( )	Sea Dragon	(Adventure International)
5	(2)	Slinky	(Cosmi)
6	(5)	Caverns of Kafka	(Cosmi)
7	(7)	Airstrike II	(English)
8	(–)	O'Reiley's Mine	(Datasoft)
9	(8)	Zaxxon	(Datasoft)
10	(4)	Rally Speedway	(Adventure International)*

*Cartridge. † 32K disc ‡ 48K disc
(Figures compiled by Calisto Computers 021 632 6458)

Spectrum

1	(6)	Match Point	(Psion)
2	(1)	Jet Set Willy	(Software Projects)
3	(5)	Fighter Pilot	(Digital Integration)
4	(8)	Blue Thunder	(Foundry Systems)
5	(9)	Sabre Wulf	(Ultimate)
6	(–)	The Hulk	(Adventure International)
7	(3)	Jack and the Beanstalk	(Thor)
8	(–)	Chaotic Capsule	(Alligata)
9	(7)	Trashman	(New Generation)
10	(–)	The Fourth Protocol	(Arcade)

*All 48K
(Figures compiled by W H Smith and Son London)

Books

1	(7)	Creepy Computer Games	(Usborne)
2	( )	Space Games	(Usborne)
3	( )	Roundabout Directory	(PJR)
4	(–)	Ideas for Micro uses	(Ladybird)
5	(–)	Heroes are Fun	(Ladybird)
6	(–)	Micro Knowledge	(Ladybird)
7	( )	Understanding Computer Graphics	(Usborne)
8	( )	Projects and Programs	(Ladybird)
9	( )	Choosing and Using a Micro	(Fontana)
10	(–)	Penguin Computing book	(Penguin)

(Figures compiled by Bookseller)

Book Ends

LISTINGS

The Memotech MTX Program Book is a book of listings. Ordinarily I would want to avoid such a tome. It's not that in this book the listings are particulary wonderful or radically different, it's just that the Memotech is really not a bad machine but hardly anyone is doing books/software for it. And it deserves a mention just because of that.

Book *The Memotech Program*
Price *£8.95*
Micro *Memotech*
Supplier *Phoenix Publishing, 14 Vernon Road, Bushey, Herts*

FETCH CYCLE

If monadica operators you in a glitch (you can never find one when you want one) or if you thought that static storage allocation was waiting for a council house and, moreover, if you care about these things at all then you need *A Directory of Computing Terms* — recently published by Fontana.

It will explain all the above terms, and more. A total of over 25000 entries including explanations of such wonderful terms as thrashing, refresh, infomatics (it has to be American) and fetch cycle (not an instruction).

I found it moderately entertaining but some may doubtless find it invaluable.

Book *A Dictionary of Computing Terms*
Price *£2.95*
Micro *General*
Supplier *Fontana, 8 Grafton Street*

TRACER

Better than most books with similar titles is *Advanced Programming for the BBC Micro* by Mike James and S. M. Gee. Better because the 'advanced' information it contains is genuinly useful.

There are large sections on programming structure (particularly important in BBC Basic) and file and array handling — this latter being used in the development of a spelling checker (surely all BBC owners are perfect spellers already?). It ends, inevitably, with machine code, and has programs for a disassembler and an execution tracer.

Book *Advanced Programming for the BBC Micro*
Price *£6.95*
Micro *BBC*
Supplier *Granada Publishing, 8 Grafton Street, London W1X 3LA*

This Week

Program	Type	Micro	Price	Supplier
Miner 2049er	Arc	Adam	£38.95	Micro Fun
Pit Stop	Arc	Adam	£29.95	Epyx
Sub Roc	Arc	Adam	£32.95	Sega
Time Pilot	Arc	Adam	£29.50	CBS
Star Commando	Arc	Amstrad	£8.95	Terminal
Dambusters	Arc	Atari	£6.95	NDSL
Machine Code Tutor	Ut	Atari	£14.95	New Generation
Missile Strike	Arc	BBC	£7.95	Superior
95 Wiz	Arc	BBC	£7.95	Superior
Mutant Spiders	Arc	BBC	£5.95	Superior
Star Striker	Arc	BBC	£7.95	Superior
Chess	S	BBC	£7.95	Superior
Darts	S	BBC	£9.95	Superior
Hi Bouncer!	Arc	BBC B	£8.95	Mirrorsoft
Evil Dead	Arc	Commodore 64	£6.50	Palace
Jet Boot Jack	Arc	Commodore 64	£6.95	English
Jonny and the Jimpys	Arc	Commodore 64	£5.90	Ocean
Oracle's Cave	Arc	Commodore 64	£7.50	Doreas
Spy School	Arc	Commodore 64	£6.95	Dimension 21
Stunt Bike	Arc	Commodore 64	£6.90	Ocean
Football Manager	S	Commodore 64	£7.95	Addictive
Machine Code Tutor	Ut	Commodore 64	£14.95	New Generation
Return of the Ring	Ad	Dragon	£9.95	Wintersoft
Zaksson	Arc	Dragon	£6.95	Cable
Mr Wiz	Arc	Electron	£7.95	Superior
Chess	S	Electron	£7.95	Superior
Astromilon	Arc	Memotech	£8.95	Continental
Mission Alphatron	Arc	Memotech	£6.95	Continental
Phaid	Arc	Memotech	£6.95	Continental
Star Command	Arc	Memotech	£7.95	Continental
Tapeworm	Arc	Memotech	£8.95	Continental
Atlantic	Ad	Spectrum	£6.95	M&J
Jolly Roger	Ad	Spectrum	£6.95	Video Vault
French & German is Fun	Ed	Spectrum	£12.95	CDS
Matching Pairs	S	Spectrum	£3.95	CCS
Spectrosim	Ut	Spectrum	£7.95	Shiva

Key **Ad** — adventure/**Arc** — arcade/**Ed** — education/
S — strategy-simulation/**Ut** — utility

This Week is a new section that covers all the new software coming on to the home micro market each week. All suppliers should send details of their new programs to This Week, Popular Computing Weekly, 12-13 Little Newport Street, London WC2R 3LD



A changing world

Another software company — Imagine — has collapsed: this time the collapse is not only into financial disarray, but also into open disagreement.

Without bothering about the rights and the wrongs of the affair, and there will be rights and wrongs, the dispute has a rather more general relevance. At one time not so very long ago software houses like Imagine were thriving with so much money boosting the coffers that small disagreements would seem trifling.

That money is no longer coming in at a rate that will produce the enormously rich, with enormous cars, who were to arise from the ranks of the programmers. Unfortunately, writing programs is not that difficult a job, and there are many people who can do the job well, they cannot all be millionaires.

The problem with Imagine (and nearly every other software house) is a lack of imagination. It has been clear for a year (readers of Ziggurat will remember) that the software and hardware market was changing. Not the minor change to a *Jetset Willy*, or a *Sabre-Wulf*, or an *Alchemist*, but to an entirely new direction.

More people now seem to want serious software, useful software, and not Megagames — though what counts as useful or serious can vary tremendously with the individual.

Leo Scanlan wrote (in *IBM PC Assembly Language*, 1983) "Intel made a quantum leap forward in 1978 by introducing the 8086" This is where the action is. The first 'quantum leap' in computing was the Intel 8088 chip. The Sinclair QL may or may not be the second but the point is that quantum leaps are the order of the day.

I believe that the public has more imagination than many of the firms trying to make money out of computing. It is discriminating; most computer publishers of books, magazines or software still seem to treat all machines and all individuals in a like manner. The "Don't knock a winning combination" attitude seems to rule.

The more perceptive realise that owners of BBC computers tend to be different type of person to the owners of Commodore computers. It is to be suspected that the owners of the QL will not be the same type of person as the owner of a Spectrum. Look at reviews of the QL, look at the books, hardware add-ons and associated QL paraphernalia. Does it come across that the QL is a distinct machine, with a new distinct philosophy? Just because a person has a wealth of experience with the Spectrum, and most people have, does this mean that he or she will have some special affinity with the QL as a machine?

Commentators seem unwilling to examine the ideas behind the QL (or any other machine) or do not understand that there is a philosophy. I will treasure for all time the comment of one young journalist that the most exciting thing on the QL was the real time clock (that is true!)

The quantum leap did not arrive with the QL, it happened before. And there have been others since.

Unfortunately, few computing 'professionals' realise that their world is continually changing, and that new ideas then are old ideas now.

Boris Allan

Another brain teaser

Puzzle No 116

Bob, the printer, had another brain teaser for me the other day. He was printing a book and in numbering the pages he had used as many pieces of type with the digit '1' as he had used '2's and '3's together.

1 2 3

As an example, if he had numbered from 1 to 12 he would have used five '1's, two '2's and one each of the other eight digits.

It was fairly slim volume, but the only information he would give me was that the highest numbered page was odd.

How many pages were there?

Solution to Puzzle No 111

As we know the sum is 13 and 17 — and must also be divisible by 221, the product of 13 and 17.

The program substitutes variables x, y and z for the missing digits, and divides the 'reconstructed' number by 221. If this results in an exact division, the result is printed.

```
10 FOR X = 0 TO 9 20 FOR Y = 0 TO 9 30 FOR Z = 0 TO 9
40 LET T = 7 * 10000000 + [illegible]1000000 + 85 * 10000 + Y *
1000 + 54 * 10 + Z 50 LET D [illegible] INT (D) THEN PRINT T 70
NEXT Z 80 NEXT Y 90 NEXT X
```

Of the possible solutions only one has the digit '3' as one of the missing digits, so this must be the answer: 75858543.

Winner of Puzzle No 111

The winner is: H D MacGregor, Ashtree Road, Frome, Somerset, who receives £10.

Rules

If the puzzle can be sensibly solved using a computer then the winner will have included a listing of the program used to find the correct answer. The closing date for entries to Puzzle No 116 is 3 August.

The Hackers

Going up market was the best thing we ever did - No more hordes of kids to contend with.
SUPERIOR BUSINESS SYSTEMS FORMERLY GAMES A GO-GO
Anyway, closing time again
?
Right you lot OUT! NOW! Don't you have homes to go to?


To Absent Friends
STARVED TO DEATH BY WHOLESALERS CREDIT
BORN 1981 DIED 1984 CRUCIFIED BY ADVERTISING RATES LITIGATION and MISMANAGEMENT
OUR GLORIOUS DEAD
Fell in the Battle of the Best Seller Ratings 1984
They could not pay the Price to get into the Charts
DIED AT BIRTH
CHOKED ON GREED
In Memorium
Honesty
Humour
Entertainment
Originality
Independence
THEIR NAME LIVETH FOR EVERMORE
KILLED BY PIRACY
AUTOMATA
CARD NUMBER
MY SIGNATURE
MY NAME
MY ADDRESS
POST CODE
SAVE INDEPENDENT SOFTWARE HOUSES WHILE YOU STILL HAVE A CHOICE. BUY MAIL-ORDER. BUY NOW! JUDGEMENT DAY IS HERE